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Medical Record

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*Progress of Medicine, Surgery, Obstetrics
and the Allied Sciences*

VOLUME II.

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Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

CALLENDER ON THE RESULTS OF HOSPITAL PRACTICE.*

We commend this interesting record of two years of active practice in the largest and oldest hospital in London to the attention of all those who still believe in the doctrine preached by the late Sir James Simpson, of the necessary unhealthiness of large hospitals which have been long in use. But, irrespectively of its bearing on the question of hospital hygiene, the paper is of considerable original value in regard to several disputed points of surgery. A short *resumé* of a part at least of its contents will be acceptable. In the first place we have the gratifying list of amputations (at page 2), representing a continuous series of 30; viz., 13 of the thigh, the same number of the leg, 1 of the arm, and 3 of the forearm, treated in the same wards by the author and Sir J. Paget, without one death. The indications for operation, and especially the ages of the patients, ought to be given, in order to make this table perfect. No one knows better than Mr. Callender how important an influence the patient's age exercises on the result of amputation, since in a former volume of these reports he has called special attention to this very point. And we can hardly doubt that these thirty amputations were performed under favourable antecedents, such as must often be absent in hospital practice. Still the list is amply sufficient to prove Mr. Callender's point, that there could not have been any pestiferous atmosphere in the institution where such serious mutilations could be repeated thirty times with impunity.

Next we have a very important register (table 3) of the pulse, temperature, and respiration in 100 cases of operation, accident, and disease, during eleven days, to illustrate the phenomena of reaction or overaction, and of shock. The former, in Mr. Callender's experience, has been very slight, even of the severe operations; and the latter almost *nil*. On this subject we may quote as follows.

'It is remarkable how little impression is produced by even the most severe operations. On the day of operation (in each instance performed with the aid of ether or of chloroform), the pulse usually rose towards the evening, but in a few cases there was a remarkable fall, owing to the relief which the patient obtained from the removal of some local source of irritation; for instance, in case 25 the pulse fell from 130 to 96, after an amputation at the thigh for a large sloughing cancer-growth from the fibula. The temperature either rose slightly or fell slightly; as a rule, it was not materially affected. When it rose

the highest it did so from a previously high temperature, as in the three following examples:—

| | | | | |
|-------------------|---------------------|-------|-------|---------|
| Excision of knee, | temperature rose to | 103.6 | from | 101.5 |
| Ovariectomy | " | " | 102.2 | " 101.2 |
| Ovariectomy | " | " | 101.2 | " 99 |

'The frequency of respiration increased slightly.

'The first day after operation the condition of the pulse was very various, although in most cases it rose slightly in frequency. The temperature became a little higher, usually towards the evening, and the respirations were again a little more frequent.

'The second day after operation the pulse rose; the temperature also rose, the highest rise being to 104 from 100, but on this day the respirations fell.

'Pulse, temperature, and respiration became natural after operations on the following days:—

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 3 | 5 | 4 | 6 | 6 | 6 | 4 | 2 | 1 | 2 | 3 |

Number of Cases.

'Taking all the cases of operation which have been under my care, I never saw anything like a condition of shock which could be measured by any register of pulse, of temperature, and of respiration, and I say the same respecting the next series of cases, injuries; for, except in patients admitted moribund, we never found anything in pulse, or temperature, or respiration, which could collectively be said to indicate shock; so that, whatever is meant by the expression, the condition was so transient that it usually passed off before the cases came under our notice, so far as to leave no trace in the three great signs recorded in Table III.'

Mr. Callender adds some particulars of cases brought into the hospital, after the above was written, suffering to all appearance acutely from shock after an accident, in which nevertheless the pulse, temperature, and respiration were hardly affected; and he refers to another case in which a considerable effect was produced on all three functions by mere mental disturbance. The inference which Mr. Callender suggests would be, that the phenomena of shock are rather due to mental than to bodily disturbance. He points out also a condition which occasionally takes place, to which he gives the expressive name of 'subaction,' the reverse of overaction, in which the three great functions are depressed instead of excited. And he agrees with other observers in dwelling on the importance of this attentive thermometry and note-taking, in estimating the probability of secondary complications (pyæmia, erysipelas, &c.); these, however, have been of course very rare in his experience, otherwise his list of operations would have shown very different results.

These results have, as Mr. Callender has elsewhere also explained, been attained by the careful observance of all those details of treatment which are enforced already by the precepts of all surgical authors (though it may reasonably be doubted whether due care is always given to such observance in the hurry of hospital practice); viz., to careful inquiry into the previous history and general condition of the patient even (and perhaps more especially) before minor operations, in preparing him for the operation by familiarising him with the position he will have to observe, or any detail of treatment which will become necessary (such as strapping, catheterisation, &c.); to not closing the wound till all tendency to oozing of blood is stopped [Mr. Callender, it must be premised, almost always uses torsion as a hæmostatic]; drain-

* *Two Years of Hospital Practice.* By G. W. CALLENDER, F.R.S. From *St. Bartholomew's Hospital Reports*, vol. ix.

age for twenty-four hours to remove the bloody serum which usually oozes after operation; dressing with carbolic oil; and isolation of the wound by the use of a separate camel's-hair brush for cleansing each wound. Mr. Callender also likes to treat his stumps on a splint (a practice very grateful to the patient, which is unaccountably rare in our hospitals) and to swing the splint and ventilate the bed by introducing a tube under the bedclothes, warmth being provided by a hot-water bottle at the foot of the bed. The upshot of Mr. Callender's teaching (and the present writer need hardly say that he agrees with it, since he has often said the same thing) is that, for all that has been proved to the contrary, the results of hospital practice can be assimilated entirely to those of private practice—allowing that well-known sanitary rules are observed—provided the same minute care and deliberation be used in the one case which are usually used in the other. That the circumstances of Mr. Callender's hospital experience have been accidentally and unusually favourable is very probable, but the facts speak for themselves, and are hard to explain on any other than the above hypothesis.

Mr. Callender has no faith in the 'antiseptic' theory, though (as above stated) he uses antiseptics freely in dressing wounds. On this point also it is well to quote his own words.

'From what has been said respecting the dressing of wounds, it will be seen that, in a limited way, antiseptic treatment has been used very generally. Cleansing an accident wound or washing an operation cut with carbolic acid lotion, or with chloride of zinc solution, covering the parts with carbolic oil on lint, and sometimes covering an open sore with balsam of Peru, has been the rule of treatment; whilst over all immediate dressings a thick covering of cotton wool has served the purpose of protection and of warmth-giving, and perhaps has been a help in preventing contamination. But, with these measures, my use of an antiseptic treatment ends; and I have the strongest belief that success in the further management of operation and other wounds is ensured by extreme care and gentleness in the manipulation of the parts, by strict maintenance of rest, and by giving free exit to all serous discharge or matter.

'Thus, whilst recognising the good results claimed for the strict antiseptic treatment, I hold that results quite as favourable can be gained by a plan of wound-dressing which is so far more convenient than that treatment, in that it is more simple—one for the carrying out of which the means are always at hand and available for any emergency.'

We have bestowed so much space on this, which may be called the general part of the paper, that we can only give extracts from some of the more interesting special points which are noticed in it.

On p. 33 the reader will find a representation of an excellent splint for the treatment of fractures of the forearm, by which passive motions of the elbow, both flexion and rotation, can be made without any disturbance of the fractured parts, and thereby the lower fragment of the radius can be adapted to the degree of supination in which the other is placed by the unbalanced action of the biceps and supinator brevis.

On p. 35 is a table of the fractures of the femur which have been under treatment—20 in number—confirming the statement of those who assert that, with all care in management, such fractures as a rule are always followed by some shortening, except in

childhood. In one case only is a cure without shortening claimed in adult life—excluding one in which the fracture implicated the inner condyle only, and where, therefore, shortening was impossible. In the only two cases which happened in childhood, the patient recovered without shortening.

The only other subject which our space allows us to notice, is that of stricture of the urethra; on which, Mr. Callender makes the following observations.

'I agree with some remarks, recently published by Dr. Thiry, respecting the practice of puncturing the bladder, for retention of urine.* Dr. Thiry states that he never knew the stricture which could prevent him from passing a catheter into the bladder. I have never had occasion to puncture the bladder for retention, except in the case of a female who was admitted with retention, consequent upon blocking of the urethra by the growth of a cancerous tumour.

'In all severe cases of retention, no attempt at passing a catheter should be made until the patient has had a warm bath, a full dose of opium, and a purge. If relief do not follow from this treatment, and it almost invariably does follow it, a catheter is passed under more favourable circumstances after such treatment has been employed, and after the patient has been for a time recumbent in bed, than if the attempt had been made when he first applied for treatment. If the patient passes water in or after the bath—and I never knew one fail to do so—even although the bladder may not be thoroughly emptied, it will give him a couple of days in bed, with opiates if needed, before using an instrument. When a catheter is passed, I have it tied in for as long a time as the patient can conveniently bear it, usually for two days, beyond which time it is needless to have it retained. On withdrawing it, no difficulty is experienced, the same day or the day after, in passing a much larger instrument, generally a no. 6 or no. 8 silver catheter. In some cases I find it necessary to dilate the stricture with a catgut bougie before introducing a metal instrument, but in such instances the passage for the urine has been narrowed to an extreme degree, and the cases are not of frequent occurrence.

'It is a point which cannot be too strongly insisted upon, that the operation should not cause the urethra to bleed; if any blood escape through the instrument, or by its side, while it is being passed towards the bladder, it is my invariable rule to desist from the operation for the time.

'Except for the purpose of clinical teaching, I have not used instruments for curing a stricture by splitting it, than which it is my opinion that the treatment by means of dilatation with catheters, as here described, is based upon more sound principles of surgery, and is in its results of greater permanent benefit.

'I have never considered it necessary, or have thought it desirable, to operate upon a stricture by cutting into the perinæum.'

The opinions of most hospital surgeons will, we believe, endorse these remarks of Mr. Callender and those which his colleague, Mr. Savory, has recently made on the same subject. The effect of both is to dissuade that constant instrumental interference which is the rule in stricture, but by which most surgeons must recall (both in their own practice and in that of others) probably along with cases in which the cure has been rendered more speedy, others in

* *La Presse Médicale Belge*, September, 1872.

which a case, which would have progressed steadily to recovery if nature had been more confided in, has been rendered long, painful, complicated, and perhaps fatal, by unsuccessful manipulation during the stage of irritation in which usually patients apply for treatment. A very striking fact connected with stricture is the extreme rarity of finding in the dead body (apart from traumatic lesions) any stricture which is really impassible. In fact, the benefit of leaving a patient alone for a time warm in bed, and under appropriate medical treatment, for some days before introducing an instrument, will be obvious to any one who will try the plan. But the verdict of practical surgeons will differ very much as to the non-existence of strictures in which a catheter cannot be passed, and as to the absence of necessity in any case for perineal section. The present writer has certainly in several cases failed to pass an instrument after the most patient trial of rest, medical treatment, baths, chloroform, and every other known means, and has known the same thing to happen to surgeons for whose dexterity and experience he could respond more confidently than for his own; and he has seen several cases, and operated on two, in which, though no actual or complete retention occurred, yet no instrument could be passed (the patient having been under the successive care of several surgeons); and the health was suffering so much from constant irritation and cystitis, that perineal section was performed, and, as far as could be seen, was urgently indicated. Although, therefore, the general teaching of Mr. Callender on this matter, as on the others which he handles, is doubtless sound and very appropriate at this time when various more or less violent methods of treating strictures have been so perseveringly forced into notice, yet his own individual experience appears to have been unusually favourable. With these few selections, we must leave the bulk of the paper to the attentive study of our surgical readers, which it will well repay.

T. HOLMES.

TREATMENT OF SYPHILIS BY MERCURIAL FRICTION. BY M. PANAS, OF THE LARIBOISIÈRE HOSPITAL, PARIS.*

It is remarkable that treatment by friction was the first employed when the specific properties of mercury were established. Since the introduction of internal medication by Van Swieten (Van Swieten's liquor) medical practitioners have several times returned to external application; having found out the inefficiency of the other method in certain cases. This inefficiency has been insisted on quite lately by M. Fournier, one of the most declared partisans of internal medication. The objections which have been made to the treatment by friction are, first, that it is a dirty method, and disgusts the patient; and secondly, that it exposes them to stomatitis and irritating local eruptions of the skin. With regard to the first of these objections, besides its being of quite a secondary nature in comparison with the importance of the object to be attained—the extinction of syphilis in the individual and the arrest of its propagation in the species—it cannot be maintained when it is seen how the ointment is used in practice.

On the other hand, the greater frequency of stomatitis is a serious objection; and I have therefore paid

great attention to it, and during my residences at the Lourcine, Midi, and St. Louis Hospitals, as well as in private practice and at the Lariboisière, I have succeeded in avoiding stomatitis, or in weakening its effects, in nearly all cases.

All who have witnessed my practice have seen that stomatitis is infinitely less common, and much less serious, than it is during ordinary treatment by pills or mercurialised liquids administered internally. I have often had occasion to give bichloride of mercury internally, and to have frictions made on the same individual during six weeks or two months consecutively, without developing the least trace of stomatitis. I have laid down an axiom, with the object of attaining this result, which will excite surprise at first sight; it is, that we must not combat but prevent mercurial stomatitis.

It is, in fact, a rule with the majority of writers on syphilis to suspend antisyphilitic treatment as soon as mercurial stomatitis appears. This, however, is but a delusive guarantee against the subsequent development of stomatitis of a severe type; experience having abundantly shown us that notwithstanding the cessation of the use of the drug and the employment of various gargles and of chlorate of potash, stomatitis, once developed, makes continuous progress. Therefore, I repeat, we must especially endeavour to prevent stomatitis, and not to cure it. We possess for this object an almost certain and exceedingly simple means. From the first commencement of the treatment, I pay attention to the state of the patient's mouth. I make him have his teeth freed from tartar, his carious teeth stopped or extracted; I then prescribe a strongly astringent dentifrice, which he must use twice or thrice, or even more frequently in the course of the day. I have used the following formula for this purpose with much success.

| | |
|--|-------------|
| Powdered cinchona, extract of catechu, | |
| of each | 15 grammes. |
| Tannin | 2 grammes. |
| Alum | 1 gramme. |
| Essence of peppermint or aniseed, a sufficiency. | |

A no less powerful preventive of stomatitis, and one which of itself is a depurative agent in syphilis, consists in inducing sweating. For this purpose I give my patients one or two vapour-baths weekly, from the beginning of the mercurial treatment; this, besides contributing to the thorough cleanliness of the skin, tends to diminish the virulence of existing or prospective syphilitic eruptions. If the patient be a smoker, I order him to leave off tobacco, or to put a restraint on his use of it; and in all cases I enjoin the patients only to smoke with pipes or mouth-pieces made as long as possible, so as to prevent irritation of the mouth by the highly heated smoke, charged with nicotine. To conclude, with regard to stomatitis, in newly born infants and toothless subjects, stomatitis need not be taken into account in the preparation for mercurial treatment, for it never occurs. The eczematous eruption, sometimes brought out on the skin by the use of mercury, is almost to a certainty avoided by taking the precautions which will be subsequently described.

The objections to the use of frictions are thus disposed of; their superiority over the internal treatment in syphilis is so great, that no comparison between them can be instituted. All the mercurial compounds, and especially the double iodides and chlorides, are caustic, and very irritant even in small doses; so that, when they are administered internally, they

* *Journal de Médecine et de Chirurgie pratiques.*

not only very rarely salivate, but they bring on diarrhoea, gastro-enteritis, gastralgia, and dyspepsia; these are sometimes of an obstinate character, and make it necessary to suspend the treatment, but may still last long enough to be of great detriment to the patient. Everything that has been written against mercury as calculated to deteriorate the nutrition and the bodily health, is only applicable to badly tolerated or too long prolonged internal medication, and not to the external use of the medicine; for as M. Liégeois has established in the case of hypodermic injections of corrosive sublimate, and as I have lately witnessed in the use of frictions, the patients, in proportion as they are saturated with mercury, far from wasting, regain a healthy appearance, and become fat in a very remarkable way. I have known some unfortunate sufferers from gastralgia, and dyspepsia, who could not tolerate an atom of mercury taken by the mouth. Their medical attendants, doubtless ignorant of the curative power of frictions, had given them up without treating them, and they were consequently threatened with tertiary eruptions.

It has been maintained that, as the gastro-intestinal mucous membrane is more adapted for absorption than is the skin, the intestinal canal was the best channel by which to introduce mercury into the system. This, however, is a profound and lamentable error, as I shall proceed to show. And, first of all, what does clinical science teach us on this point? It teaches us that while considerable quantities of pills or of liquor mercurialis may be taken without inducing salivation (that irrefragable proof that the mercury has penetrated into the system) a single friction, made for pediculi pubis without any special care, has sometimes sufficed to bring on intense salivation on the morrow of the second day after the application.

If we reflect on what occurs when the mercurial preparation reaches the stomach, we become enlightened. We know, as a matter of fact, that all mercurial salts become more or less changed into an insoluble chloride; and that this, when brought into contact with an excess of chlorine, may pass into a sublimate in a varying proportion; and this, finally, when in contact with albuminoid matters, of which there are many in the stomach, is likely to form chloro-albuminate of mercury, likewise insoluble. In the midst of all these chemical conflicts, complicated by the quantity, the quality, and the larger or smaller amount of acidity in the food contained in the stomach, can we expect to obtain certainty of results from such a mode of administering the medicinal agent? Certainly not. Besides, the results vary in different persons, and in the same person from one day to another. Whether we do or do not produce salivation or diarrhoea, prompt effect on the constitutional manifestations of syphilis or no influence whatever, all this is, we see, left to the caprice of the chemical combinations which are about to take place in the stomach and intestines, on contact with the food, the gastric, pancreatic, and intestinal juices and the bile, and of the healthy or morbid modifications which these in their turn may present. There is nothing of this kind in external medication, where the action is always in proportion to the dose, and varies only with the limits of the degree of absorption peculiar to each individual. A no less important consideration to be reckoned in favour of this treatment is, that the mercury reaches the circulatory system direct without passing through the portal system and the liver; a passage which is only made to the prejudice of the integrity and the ulterior functions of that important organ. It is a

known fact from M. Orfila's researches, that of all the viscera the liver is the organ in which metallic substances are fixed for the longest time. A last and not less important advantage of the external method is, that it renders possible the administration by the stomach, that organ being left free, conjointly with the mercury, of other drugs often indispensable in the treatment of syphilis; such as iron, cinchona, arsenic, cod-liver oil, and iodine. This compound treatment is above all indispensable when an attack of syphilis of long standing is in question.

Up to this point, I have only replied to the objections which have been wrongly set up against frictions. I will now, however, pass to a considerably more important part of the question, that of the greater efficiency of frictions in comparison with internal treatment. As my colleague, M. Fournier, accurately said in one of his clinical lectures, when speaking of frictions, many things are learnt at one's own cost after leaving the schools. By this he meant that, having been brought up in the notion of the superiority of mercurial pills over frictions, he has since been compelled to give up that belief, to the great advantage of his later patients.

This is precisely what occurred to myself as stated in one of my communications to the Société de Chirurgie in 1867; and I have never ceased to reiterate it in my hospital lectures. The results I have obtained are summed up in the following paragraphs. It would here be impossible to relate them in detail on account of their great number, the cases I have collected from the Hôpital du Midi alone amounting to several hundreds.

Patients treated without any result for many months by proto-iodide or sublimate pills, in doses of from two to four daily, have recovered their health after having undergone a very short course of frictions, viz., from twenty-five to thirty days. Patients having old hypertrophied and condylomatous patches about the anus and in the bursæ have seen them disappear after an average of ten, fifteen, or twenty frictions, and after thirteen days' treatment only. Of course no local treatment had been used for these excrescences, and I challenge any one to produce the same effect in thirteen days with the internal mercurial treatment, and still more without mercury. I say this for the benefit of the anti-mercurialists, who are not satisfied by appearances.

I have chosen mucous condylomata for clinical experiment, because they constitute the most inviolable and incontestably characteristic manifestation of constitutional syphilis; and what is true of the condylomata is the same for all other syphilides, as well as for the tardy or tertiary manifestations in those cases of syphilis on which frictions have effect, even where iodide of potassium has failed, contrary to what is generally taught on this point. I have lately demonstrated this in my practice at the Lariboisière Hospital, in the case of a man having an enormous syphilitic testicle, who after having taken six grammes of iodide of potassium daily during six weeks, without any effect, obtained immediate improvement from frictions. In a second case, frictions alone, without an atom of iodide, sufficed to cure the patient rapidly of his syphilitic testicle. These severe forms of syphilis, and above all, those which attack the bones, the nervous system, the choroid and retina, and the parenchymatous organs, cannot be better or more promptly healed than by frictions; a fact established by many almost unhopèd-for cures which I have obtained by this method. M. Ricord

also follows this practice; and M. Fournier, who has arrived at the same conclusion, says, when speaking of syphilitic retino-choroiditis:

'The serious ocular lesions of which we have just spoken, are far from always occurring in the course of severe attacks of syphilis or of cases of syphilis, with such very marked symptoms as can not be passed unperceived. More than once I have been struck with the contrast between these deep-seated and obstinate ophthalmias and the mildness of the external symptoms; whence I come to the conclusion that it is better to mistrust syphilis and always prudent to treat it, even when it shows itself under the most inoffensive and reassuring form.' To this I add, that we must treat as surely and as rapidly as possible, by frictions. After this quotation, we find it difficult to believe that M. Fournier still persists in giving preference to internal treatment by pills of proto-iodide of mercury in ordinary and apparently mild cases of syphilis; since he himself adds:

'In lesions of so grave a nature, I do not think it is expedient to hesitate in employing specific treatment; we must call in the aid of mercury, and mercury administered in the most active and energetic way possible. Mild measures and the treatment known as "slow extinction," are not admissible in such circumstances.'

The proto-iodide, the sublimate, and metallic mercury, given internally, even in large doses, are, most of the time, inefficacious or insufficient against these manifestations. I have been convinced of this by many failures which I deeply regret, and which I should not have to lament, if I had not been obliged to acquire my own education on this point. Mercurial treatment is the true, the only resource; therefore, away with half measures, with shifts which only result in allowing the lesions to become confirmed and incurable. When deep-seated ophthalmia is present, prescribe frictions without delay, gentlemen; and powerful frictions, containing a daily dose of four, six, eight, ten or twelve grammes of double mercurial ointment, or even more if need be. In cases of deep-seated ophthalmia, I owe to treatment by frictions successes which I do not believe I should have obtained by administering mercury internally. I cannot repeat to you too often, that it is owing to frictions, and to frictions only, that we are able to overcome the secondary affections of the choroid, of the optic nerve, and of the retina.

The superiority of mercurial frictions is incontestable in the treatment of syphilis occurring in new-born infants, where the stomach would reject the smallest dose of mercury. On the other hand, in these cases, syphilis yields admirably to the influence of mercurial frictions, made by preference in the axilla.

I have said enough to show the harmlessness of frictions, and their great superiority over internal medication,—a superiority which many of our colleagues seem not to recognise or not to appreciate at its true value, to the detriment of their patients. If the example of so distinguished a practitioner as M. Fournier, whom I reproach with still being too much a votary of the internal treatment, did not suffice to encourage others to follow this method, I would willingly add, especially as it is just to do so, that in Vienna, in many other parts of Germany and in England, the internal treatment is almost entirely abandoned, preference being given to the external treatment in the form of frictions, calomel vapour-baths, or hypodermic injections, of the sublimate.

The last-mentioned mode of practice also received the sanction of the late M. Liégeois.

This is not the place to seek for the physiological explanation of the great energy of the mercury administered by this method, and still less to determine the manner or channel by which this metal penetrates into the organism. It is not that the elements for such an inquiry are wanting; for, having made convincing experiments on this subject, we possess some important data in connection with it. It is, however, of less interest to pure practice, and I therefore prefer here to pass it over in silence, and to proceed directly to the method of employing mercury in friction.

I use double mercurial ointment of good quality; that is to say, where the mercury is thoroughly reduced so that no globules are visible. The usual dose is six grammes a day. The frictions are made at bedtime, on a limited portion of the body, and on one side only—the calf of the leg by preference, or the thigh, groin, or axilla. It is enough to continue rubbing for from three to five minutes at most. The part is then covered with linen and oiled silk, and the whole is fixed by the aid of a pocket-handkerchief and two or three turns of a bandage, so as not to soil the sheets. To avoid irritation of the skin, the situation of the application should be changed every evening; it is wiped off the next morning, and, if the patient wishes, he may be allowed to wash himself with soap and water.

At all events vapour-baths, of which we have formerly spoken, serve to remove all objections to the method on the part of persons who are very particular in attending to their bodily cleanliness. If there be no reason to the contrary, we continue the frictions for a month or six weeks. We return to the use of mercury whenever fresh symptoms appear. By continuous and graduated treatment of this description we are able, without affecting the general health, to destroy the syphilis at the end of a period varying, in the majority of cases, from six months to two years.

BROADBENT, BRADLEY, THOMPSON, AND OTHERS, ON THE MEDICINAL USES OF PHOSPHORUS.

(Continued from page 802 of last Volume).

Mr. J. Ashburton Thompson contributed 'Some Observations on the Use of Phosphorus in Neuralgia,' to the July and October numbers of the *Practitioner*. He first tried the remedy in eighteen cases, which he classified as follows. 'Acute primary attacks, acute recurrent attacks, and chronic cases.' There were six cases under each head, and, as might be expected, the results in the chronic cases were the least satisfactory. Mr. Thompson remarks that 'in all cases ultimately benefited, relief followed the first few doses.' He thinks the proper range of dose is that given by Dr. Wahlstuch in his *Dictionary of Materia Medica and Therapeutics*, viz., $\frac{1}{20}$ gr. to $\frac{1}{4}$ gr. 'To prescribe less than $\frac{1}{20}$ gr. in the first place is to render its therapeutic action apparently variable or uncertain.' He now invariably begins with $\frac{1}{12}$ gr. every four hours. As regards the mode of administering the drug, Mr. Thompson, in his first series of cases, chiefly used a solution made by dissolving one grain of phosphorus in 242 grs. of alcohol by the aid of heat. He considers this preparation quite as efficacious as, and in some cases more convenient than, the

phosphorus capsules (even those in which the oil has been previously, as recommended by Méhu,* superheated, to prevent after a time the precipitation of insoluble phosphorus), or Dr. Radcliffe's pills, which are made by heating phosphorus and suet together in a close vessel, in the proportion of 1 part to 100, making into 3 grain pills, and coating with gelatine,† or the formula of Soubeiran for a 'potion phosphorée,' which Dorvault considers the best method of preparing phosphorus for internal administration, viz., phosphorated oil (French codex†), 8 parts, gum arabic 8, peppermint water 100, syrup 60; make an emulsion. The formula which Mr. Thompson used in the first reported cases is the following.

| | |
|--|-----------------------|
| Tincture of Phosphorus (made as above) | 3 drachms. |
| Rectified Spirit | 2 drachms. |
| Spirits of Peppermint | $\frac{1}{2}$ drachm. |
| Water to six ounces. | |

The rectified spirit is added to prevent the phosphorus from being precipitated in the hydrated form by the water. He remarks that this formula 'forms an active, efficient, and convenient preparation. It is not quite disgusting, and will be readily taken and well tolerated by those who have begun to experience benefit from the first few doses. It is unstable, and should therefore be supplied to the patient in quantities not calculated to last more than twenty-four hours.' The following is an analysis of Mr. Thompson's first eighteen cases. In the primary acute cases, which all recovered, the ages ranged between twenty-five and forty-six years; in the recurrent acute cases, which also were cured, the ages varied from thirty to sixty years; and in the chronic cases the ages ranged between twenty-four and forty. The varieties of neuralgia were trigeminal, cervico-occipital, cervico-brachial, occipital, and sciatic. Of the six chronic cases three were cured, two relieved, and one was unbenefited.

In his second paper, Mr. Thompson expresses himself as not altogether satisfied with the alcoholic solution of phosphorus used in his earlier cases; partly on account of its instability, but more particularly on account of its producing a very objectionable amount of eructation. These drawbacks, he thinks, are all obviated by the following formula:—

| | |
|--------------------------------|------------------------|
| Phosphorus | 1 grain. |
| Absolute Alcohol | 5 drachms. |
| Glycerine | $1\frac{1}{2}$ ounces. |
| Spirits of Wine | 2 drachms. |
| Spirit of Peppermint | 2 scruples. |

One drachm of this mixture contains $\frac{1}{12}$ gr. of pure phosphorus. This combination possesses little or no phosphoric odour, and, according to Dr. Radcliffe's theory 'that the disappearance of the characteristic odour from a solution of phosphorus is presumptive evidence of the oxidation of the drug,' ought to be inert, but Mr. Thompson's successful results in thirteen patients show that this is not the case. Mr. Thompson has given the phosphide of zinc a trial in six cases. This compound is prepared by bringing phosphorus vapour into contact with melted zinc in an atmosphere of dry hydrogen. Only one half the phosphorus in this substance is said to be available for therapeutical purposes; $\frac{2}{3}$ gr. of zinc phosphide

correspond to $\frac{1}{12}$ gr. of phosphorus, and Mr. Thompson finds this the most efficient dose. The drug may be given in the form of pills, in combination with other substances, e.g. quinine, aloes or strychnia, and these pills are found to keep well. The remedy is not so speedy in its action as the solutions of phosphorus in oil or alcohol. Of the six cases treated with the phosphide there was perfect recovery in two, two were remarkably relieved, one could not tolerate the medicine in consequence of its causing vomiting, and the other found no relief. Mr. Thompson concludes his remarks on this substance as follows:—'It is inferior in power (in neuralgia) to the oily solution or the tincture; while, in point of convenience—for portability, and for combination with other drugs—it is superior to them. In point of cost it stands far above comparison with pills and capsules, which require a special process for their manufacture, while it is not subject to any suspicion of degeneration with age.'

The therapeutic value of sodium hypophosphite in neuralgia has been tested by Mr. Thompson in three cases, and the results have been negative. He administered the remedy in water in doses, varying from 5 to 30 grains, every three hours. Two of the three cases were subsequently cured and one very much relieved by a solution of pure phosphorus. Dr. Anstie's experience of sodium hypophosphite agrees with Mr. Thompson's, while, on the other hand, Dr. Radcliffe has successfully treated four cases of nerve-pain with this drug. Mr. Thompson has found this salt serviceable in cases of extreme debility when given in 5-grain doses, and he believes the remedy 'has a special power of creating appetite. It seems to be a remedy which, to maintain its influence, requires to be given in progressively increasing doses.'

Mr. Thompson has seen benefit result from the administration of phosphorus in two cases of impotence,* from that of zinc phosphide in a few cases of epilepsy, and from that of sodium hypophosphite in cases of obstinate leucorrhœa, accompanied by side-ache. He has also observed striking relief from the use of hypophosphite of soda in some cases of dyspepsia.

In the *Bulletin Général de Thérapie*, May 30, 1873, M. Gubler has an able paper on the physiological action and therapeutical effects of phosphorus.† As phosphorus is a diffusible stimulant of great energy and of dangerous activity, M. Gubler thinks it should not be used in any affection characterised by nervous, circulatory, or trophic excitation, as in tonic and clonic convulsions, contractions, neuroses having a hypersthenic action, diffuse periencephalitis, with general paralysis, phlegmasiæ of all forms, fevers of every kind, exanthematous affections, &c. He thinks that phosphorus can only be regarded as a remedy of great value in paralytic affections; in hemiplegia, paraplegia, amaurosis, and other partial paralyses. His experience of phosphorus as a remedy for impotence is not so favourable as that of Mr. Thompson. He says it is either of no value at all, or its effects are ephemeral. It has been found serviceable in some chronic eruptions of the skin; in paralysis occurring after diph-

* Méhu, *Journ. Pharm. et de Chimie*, vol. ix. (1869) p. 94.

† The phosphorated oil (huile phosphorée) of the French codex is made thus:—Phosphorus 2, oil of sweet almonds 100; dissolve with heat. That of the Prussian codex (oleum phosphorum); phosphorus 1, oil of sweet almonds 80; dissolve with heat.

* In one of these cases, published as cured, a relapse occurred. Vide *British Medical Journal*, November 8, 1873, p. 541.

† An excellent abstract of this paper may be found in the *Practitioner*, for July, 1873.

theria; in that resulting from sulphuret of carbon intoxication, in the so-called rheumatismal and hysterical paraplegia. According to Gueneau de Mussy, Isambert, and Féréol, phosphorus is useful in the treatment of mercurial tremor; 'it is also believed to be so in paralysis agitans, and in the various forms of medullary sclerosis affecting the antero-lateral cords, and above all in sclerosis of the posterior columns' (locomotor ataxy.)

Mr. Messenger Bradley (*British Medical Journal*, Oct. 18, 1873) says that he has found phosphorus quite inert in most cases of melancholia, in impotence, in mercurial tremor, in locomotor ataxy, &c. In this communication Mr. Bradley raises objections to the dose of phosphorus prescribed by Mr. Thompson. He does not consider it either wise or safe to begin with a dose of $\frac{1}{12}$ gr. every four hours. He writes, 'My custom is to commence with one-hundredth of a grain, and gradually increase this by one-fiftieth of a grain at a time, until, if necessary, one-tenth of a grain is taken with each dose. Beyond this quantity, I do not go; as I think that, if the remedy be of use, relief will be obtained by this dose equally with a larger.' The following is the formula he now uses. 'He dissolves ten grains of phosphorus in two ounces of ether, agitating the solution from time to time; and of this solution, one minim (containing one-hundredth of a grain) is administered in an ounce of water with half a drachm of glycerine.' Mr. Bradley states that, in a case of bronchocele, which received no benefit from iodine, phosphorus in doses ranging from $\frac{1}{50}$ to $\frac{1}{20}$ gr., caused a considerable diminution in the size of the gland (*Brit. Med. Journal*, Nov. 29, 1873).

In the *Pharmaceutical Journal* for December 6, 1873, Mr. A. W. Gerrard describes a new solvent of phosphorus, viz., resin, the residue 'of the distillation of turpentine,' which is said to be capable of dissolving 4 or more per cent. of phosphorus. Mr. Gerrard calls this substance 'phosphoretted resin,' which he prepares thus. Take a strong wide-mouthed well-stoppered bottle and weigh it, then melt a quantity of resin sufficient to fill the bottle; let the bottle be warmed, then pour in the resin to nearly but not quite fill the bottle, reweigh, and for every ninety-six parts of resin take four of phosphorus. Now observe that the resin is in a fluid state; if so, add the phosphorus and fix the stopper tightly. Place in a sand-bath previously warmed, and apply heat to 200° C. (392° F.); digest at this temperature, and shake frequently, until the phosphorus is dissolved. Mr. Gerrard gives certain details which it is necessary to observe in conducting the process. The formula which he suggests for the exhibition of the drug is the following. Take of phosphoretted resin (4 per cent.) 25 grains; powdered white sugar, 75 grains; tincture of tolu, a sufficient quantity. Pulverise the resin, mix with the sugar, and form into a mass with tincture of tolu; then divide into twenty pills, each pill will contain $\frac{1}{20}$ gr. The therapeutic properties of the phosphorus appear to be in no way injured or modified by this combination. Mr. Gerrard considers 'the advantages of this preparation to be that it is inoffensive to the taste of the patient, definite and reliable for the prescriber, ready and convenient to the dispenser; and he believes, judging from its nature, it has unlimited keeping powers.'

Before we conclude, we must mention that dangerous symptoms have in a few instances resulted from

the administration of phosphorus in the medicinal doses given above. Dr. Anstie records, in the August number of the *Practitioner*, a case in which a few doses of $\frac{1}{30}$ gr. were followed by slight symptoms of poisoning (*Vide LONDON MEDICAL RECORD*, September 3, 1873). Somewhat similar symptoms were also observed in three cases by Mr. Thompson. Some patients seem to be much more susceptible to the action of the drug than others, consequently it is a wise precaution to recommend all patients immediately to leave off the remedy if it should seem to disagree with them.

The general and special symptoms of poisoning by phosphorus are well described in works on Toxicology; it is therefore unnecessary to give them here.

J. B. BRADBURY, M.D. (Cambridge.)

THE CHOLERA IN EUROPE.

The recent extension of cholera in Europe has been remarkable for the wide scattering of the disease and the comparatively small number of localities within the area of dissemination in which it has become actively diffusive. This extension was the continuation of the outbreak which in 1869 commenced at Kiev, in South Russia, and during the next two years, 1870-71, spread generally throughout Russia in Europe, passed the Russian frontier at several points into West, Central, and East Europe, and became widely distributed in Siberia. In 1872 cholera, still prevalent in parts of Great, South, and West Russia, and Poland, extended into Galicia and Moldavia, crossed the Carpathians into Hungary, and spread westward into Silesia, Moravia, Bohemia, and East and West Prussia. The disease entered East Prussia at Tilsit, at Gumbinnen, and at Lyk; and West Prussia at Thorn, on the Vistula, scattering along the course of the river to its mouth, and extending slightly into the districts of Dantzic and Königsberg. It crossed also the border of Austrian Silesia into Prussian Silesia, descending the valley of the Oder to Oppeln.

Galicia suffered much during this extension, 50,000 cases and 19,000 deaths, according to a local report, founded, it is stated, on official returns, having occurred within seven weeks at an early period of the outbreak. In Hungary the northern and north-eastern counties were mainly affected, and the valley of the Theiss; but in the autumn the disease appeared on the Danube at Buda-Pesth, and later in the year at Neusatz, and cases were reported in Croatia. On the Lower Danube groups of cases occurred at Galatz and Tultcha.

Throughout the winter of 1872-73 cholera prevailed, to a greater or less extent, in the whole of the Austrian provinces named, and probably also in parts of Poland. At the beginning of the spring of 1873 it had become disseminated over all Hungary, and was active in several parts of Galicia and Bohemia; but it is reported to have ceased in Silesia and Moravia. In May, 1873, began that extension which it is the purpose of this article to describe.

Following close upon a re-awakening of activity in Hungary, Galicia, and Poland, cholera in May began to spread from these centres in every direction; or rather, it should be said, in all the districts bordering upon these centres from which there is any information; for of the state of the disease in the neighbouring provinces of Russia nothing is known. It ap-

peared at the beginning of the month in Widdin, on the Lower Danube (where, indeed, cases had been reported in the later days of April). It passed the Italian frontier into Venetia, where in the preceding autumn a quarantine had been established in the hope of preventing the importation of the disease by Italian workmen returning home in large numbers from Hungary. It began to descend the Elbe, and appeared at Dresden on the 19th carried there by raftsmen. It commenced also the descent of the Vistula, beyond the Polish frontier, and appeared at Schillno, on the 22nd, raftsmen being here, as on the Elbe, the carriers.

In June, cholera continued to descend the Lower Danube, the river traffic and the movement of troops playing a conspicuous part in its diffusion. Early in the month it was reported at Rustchuk, later at Silistria and Galatz. It began soon to spread in the districts on both sides of the river, and on the southern side it reached Shumla. A squadron of cavalry moving between Rustchuk and Shumla had several cases of cholera on the way. Passing slowly southwards, into Italy, the disease became more widely scattered in the province of Treviso, and it passed into the province of Venice. In the north-west of Europe, continuing its course along the Vistula, it appeared at Neufahr, at the mouth of the river, on the 15th, and was very fatal there among the raftsmen who had come down the stream. On the 27th of the month it broke out in Dantzic. On the Oder it showed itself, before the close of the month, at Ratibor and Breslau; and as early as the 21st it was present in Hamburg, although the existence of the disease there did not become commonly known until several weeks later. On June 29 cholera certainly existed in Vienna, where, indeed, there had been rumours of cases at a much earlier date.

At the beginning of July the epidemic had become widely scattered along the principal lines of river and railway communication in East, Central, and West Europe; and, as the intensity of the epidemic increased in Hungary, Galicia, and Poland, the scattering became greater. Cholera had now shown itself in East Prussia in several places. It was present along the whole line of the Vistula in that province, and it began to spread into the districts on both banks. The disease appeared in Königsberg on July 6, in Elbing on the 20th, and in Gumbinnen at the same date. On the west bank of the Vistula numerous localities in the districts of Bromberg, Marienwerder, and Dantzic were attacked; and cases occurred in Posen on the 27th of the month. But on the 21st the epidemic had reached Berlin and other localities in the district of Potsdam; and still earlier in the month it had appeared in the districts of Frankfort (July 9), and of Magdeburg (July 15). On July 7 cholera had been reported in Munich.

In the course of July the disease was carried across the Baltic to Helsingborg, a small seaport town of Sweden, on the Sound, opposite Elsinore, and there it caused several deaths, and spread slightly into the adjacent district.

In July, also, the disease, still widening its area, appeared in the city of Venice and in Trieste (July 26). It broke out, moreover, in the province of Brescia, among troops stationed on the Lake of Garda; and it extended into the Province of Parma. Further eastward it showed itself in parts of Bosnia and Servia, along the course of the Save; and it found

its way southward into the district north of Salonica, where, in the following month, it prevailed with some severity in several villages. On the Lower Danube, during the month, the disease spread widely on both the Walachian and the Bulgarian shores. Extending in the Principalities, it was present in Krajova and the commune of Skela in the first week of the month; and cases were reported in Jassy on the 5th. In Bulgaria it travelled to the foot of the Balkan mountains, by way of Berkofitsha, Sofia (July 16), and Samakov, but did not pass them, stopping short at the first station on the line of railway which now connects Philippopoli, Adrianople, and Constantinople.

August was the month of greatest activity of the epidemic, as well in the original centres of infection as in the localities in which it had been disseminated during the year. In this month occurred that wide infection of seaports which most closely concerns this country. Dantzic, as already stated, had been infected in June, and Königsberg and Elbing in July. At the beginning of August cholera appeared at Stettin, and in quick succession Memel, Riga, Cronstadt, and Lübeck became infected. Revel and Pernaue escaped until the month following. On August 12 cholera reappeared in St. Petersburg. The ports of Denmark were not attacked, and those of the Netherlands did not suffer until later in the year. But on August 6 the disease was present in Antwerp; the same day it carried off a sailor in the port of Rouen; and on the 19th it appeared at Havre. Passing to the Mediterranean coast, cholera was reported at Genoa on the same day that the disease had shown itself at Havre; and on August 23 the epidemic attacked Naples.

The next month, September, cholera appeared in Paris on the 5th, in Dordrecht on the 17th, and in Fiume on the 29th. In October, cases occurred in Moscow; a slight outbreak took place at Bergen in Norway; on the 19th the disease was reported in Rotterdam and other parts of the Netherlands, and at the close of the month Caen had become infected. In November cholera appeared in Rome, and solitary cases occurred in Brindisi and Palermo, a prisoner being attacked in the latter city a few days after he had been sent there from a gaol in Naples.

Such is an outline of the distribution of cholera, on the continent of Europe in 1873. England did not escape the infection, and the history of the appearance of the epidemic on our shores is highly instructive. London had four importations of cholera. Late in July a body of emigrants coming from Hamburg, then not known to be infected, arrived at Blackwall, and two were struck down with cholera immediately after landing. Among these emigrants, during their stay in the port of London, twenty-eight cases of sickness occurred, and eight deaths, the greater number of the cases and deaths, if not all, arising from cholera and choleraic diarrhoea. In each of the months of September, October, and November, a case of cholera was brought into London, one of the cases coming from Caen, the others from Rotterdam. The epidemic was imported once into Southampton from the French coast. Liverpool had several importations of the disease. A doubtful importation occurred in July, when several cases of choleraic disease occurred among a party of emigrants who had arrived in Liverpool from Hamburg, by way of Hull. In September there were two undoubted importations into this port. The first instance was that

of a sailor who, coming with other sailors from Havre, had travelled to Liverpool by way of Southampton and London, and was seized with cholera shortly after reaching his destination. The second instance was that of a French barque which, the same month, came into the Mersey from Havre, with the master and two of the crew dying from cholera.

Not less instructive than the history of the transmission of the epidemic to this country is that of its transmission to the Bosphorus. This may be noted here. In July the Turkish Government established a quarantine against all arrivals from the Danube and the Bulgarian ports on the Black Sea at the mouth of the Bosphorus. During that month and the two succeeding months 3,000 persons, or thereabout, were placed in quarantine, and among them there were at the time of landing, or there occurred quickly after landing, half a score cases of cholera. Early in August several of the guards placed over the hospital, and others engaged about the lazaret, were seized with cholera. In addition, a soldier from Shumla, who had been detained ten days in the lazaret, was attacked with cholera in Constantinople the day after he had been set free from quarantine.

The time has not yet come when the mischief done to health and life by the extension of cholera which has here been briefly described can be fully told. The facts as yet are only partially known, but this fragmentary knowledge is not without interest, and it is sufficient to justify the expression of opinion at the beginning of this article, as to the comparatively slight diffusion of the disease within the area of its dissemination beyond the original centres of infection. Of the sickness and mortality from cholera in those centres there is information only as to Hungary and Poland, which, however, it must be observed, requires confirmation. According to a local statement, founded, it is said, upon official returns, there were in Hungary (exclusive of Croatia, Slavonia, and the Military Frontier), from the commencement of 1873 to the decline of the epidemic in October last, 433,295 attacks and 183,549 deaths among an estimated population of 16,000,000. The mortality, indeed, during this period, if these numbers be accurate, was nearly three times greater in proportion to population than that which occurred in London during the outbreak of 1849, and six times greater than that of the last outbreak in the metropolis in 1866. In Poland, during the recent prevalence of cholera, 30,000 deaths are said to have occurred. From May 18 to October 1, 1873, there were in Warsaw 6,125 cases and 2,317 deaths. In the outbreak of 1867 in this city the cases numbered 7,249 and the deaths 2,222; in the outbreak of 1852, during July and August alone, the cases were 10,900 and the deaths 4,700.

The returns for Prussia are not complete. A return dated October 24 gives as the total sickness and mortality caused by cholera in that kingdom, to that date, 38,624 cases and 19,655 deaths. The provinces which had the largest number of cases and deaths were those of Prussia, which includes the districts on the Vistula, and of Saxony, which is traversed by the Elbe. The former province had, to the date given, 10,323 cases and 5,089 deaths; the latter province 9,051 cases and 4,227 deaths. In the town of Königsberg, cholera, which in 1871 had caused 1,562 deaths, in 1873 caused 953 deaths. Stettin, which had lost 1,984 lives from the disease in 1866, lost from it in 1873 only 186 lives. The loss of life

in Hamburg during the recent outbreak was 1,002; in the outbreak of 1859 in this city the deaths were 1,286; in that of 1866 they were 1,021. Antwerp, where the disease is now said to have ceased, had 120 cases and 76 deaths to November 30. There were 140 deaths in Rouen during the seven weeks ending September 17; and in Havre 176 deaths during the ten weeks ending November 7. Paris, from September 5 to November 3, had 524 deaths from cholera. In Vienna 3,283 attacks and 1,466 deaths from the epidemic were reported between July 16 and October 20. Munich had 332 cases and 124 deaths to August 18. The progress of the disease in Italy to the present moment appears to have been free from any marked activity. In Venice there were, from July 8 to August 18, 641 cases and 306 deaths; in Trieste, from July 26 to November 5, 581 cases and 328 deaths. In the province of Parma, from July 24 to October 11, the cases were 397, the deaths 251; in the province of Brescia, from August 1 to October 9, the cases were 419, the deaths 242. The epidemic appears to have been more active in Naples than elsewhere in Italy.

On the Danube, the different towns attacked suffered to a comparatively slight extent. In Bulgaria the disease underwent a notable development in one district only, that of Shumla, where in the city, camp, and surrounding country it carried off, between June 21 and August 6, 1,243 persons. From the spring of the year to November 6, the outbreak in the Principalities caused 8,445 attacks and 3,103 deaths. Of these deaths, 406 occurred in Bucharest.

Cholera has now become dormant, if not extinct, in the greater part of the districts in which it was disseminated during the past year. Slight rekindlings of the epidemic have recently been reported in Berlin and Munich, and occasional cases still occur in the Netherlands. Although apparently dying out, the disease has not yet ceased in Hungary, and probably in other provinces of the Austrian Empire. Whether cholera will again become active in Western Europe this year it is impossible to say. We know that the infection of the disease has been widely scattered. We know, also, that the local conditions which are necessary to the growth of the infection abound. Anything beyond this must, at the best, be an ingenious guess. We do not know what constitutes a good cholera year, any more than we know what constitutes a good potato, or a good turnip, or a good wheat year, and we cannot foretell either the one or the other.

FRENCH AFFAIRS.

(From an occasional French correspondent.)

I am sorry to say that our debates at the learned Societies here, and the articles in our journals, are not much improved in international courtesy or in cosmopolitan sagacity. We are still as much irritated by the communication of any progress made by the Germans, and as little conscious of the achievements of the surgical world in general, as we were before; and we have not yet learnt the necessary lesson, that there is a world of science outside France, and that it does not always come to school here. I know your Gallic tendencies, and the tenderness which you show to Gallic weakness. I am sure that it is not exaggerated; at any rate you must always remember that we take all your compliments *au pied de la lettre*, and promulgate the flattery of your after-dinner

speeches, as a gospel of homage to French superiority. As an Anglo-Frenchman with one foot on each side of the channel, I permit myself to be rude, cynical, and *narquois*.

As your journal is now read and quoted more than any other foreign journal on this side of the channel, I hope I may be permitted, as your occasional correspondent, to say how things appear to me here; and if my French colleagues deign, as they sometimes have done in my past letters, to notice this, I would ask them to consider it as a wholesome bitter belonging to the *régime tonique*, which is coming much into use here, with other of your worn-out clothes. I was not a little amused lately, after reading the address of Dr. Parkes, to hear a discussion on typhoid and typhus at the Académie de Médecine here, in which the capital distinctions between the two diseases were on the one hand suppressed, and on the other re-established imperfectly, without knowledge of, or reference to, the classical, complete, and splendid studies of Stewart, Jenner, and Murchison—classical and standard everywhere except in our unhappy France, where we really live in a sort of addled egg-shell.

It was curious too to hear, more lately still, M. Verneuil, M. Lannelongue, and M. Guyon discussing, at the Société de Chirurgie, the 'bloodless method of Esmarch,' which that terrible traveller, M. Demarquay, had brought us back from his trip to Vienna. M. Verneuil acted as master of the ceremonies to introduce his colleagues; and they, ignorant that the habit of elevating the part to be removed and applying arterial compression has for years been practised by surgeons in Edinburgh and in London—and ignorant of what has been published on the subject in the British journals by Mr. Erichsen, Mr. Clover, Mr. Lister, and Mr. Mac Cormac—described this as a French novelty of a year old! M. Verneuil repeated, with an air of ingenuous originality, as counter-indications, those which Esmarch himself has carefully pointed out in his lecture in *Volkmann's Sammlung*; and at last M. Demarquay had gravely to vindicate his intelligence as a traveller by reminding his audience that the matter of priority was the simultaneous arrest of venous as well as of arterial hæmorrhage. But in truth, besides this ignorance of the progress of the medical sciences and practice in Europe, which is due largely to our fatal ignorance of European languages, there is a habit of incessantly abusing the Germans, which might well be left to the political papers, who acquit themselves in the matter with infinite grace and untiring vivacity. There is no reviewer, no *feuilletoniste*, no writer of paragraphs, who does not vent his little sarcasm at the 'mysticism,' the infidelity, the errors, the wordiness, the false doctrines, and the conceit of the Germans. If they would only believe that every one is persuaded of it, and cease trying to convince each other! But it is endless, and pervades every debate.

At the recent *séances* of the Société de Chirurgie, M. Trélat distinguished himself by a *chaleureuse allocution* on the surgical treatment of the necrosis of the jaw due to phosphoric poisoning, in which he advocated the ordinary rules of surgery, and described the practice well known to all British surgeons. Whereupon, M. Verneuil congratulated M. Trélat, and declared that he might 'boldly pose himself as the head of the file of the French school against the doctrines of the German school.' Surely it is time that this silly declamation against the *sol*

maléant of Germany should cease; it is degrading to our scientific character as Frenchmen. We ought by this time to have sufficiently recovered our self-possession to be able to discuss scientific doctrines without regard to their 'soil,' and to cease to betray a soreness which we should then the sooner cease to feel. The incessant abuse of Germany in our scientific debates is, I fear, the surest way to alienate the respect which we desire to have from the rest of Europe. A majestic ambition is far removed from these tricks of wounded vanity. This Allemanophobia resembles a little too much the ancient declamations against *la perfide Albion*. A nation ought to consider that it may sometimes be in the wrong, and that to persist in attributing eminence to impudence, is almost as foolish as the insensate determination to palliate defeat by the allegation of treason.

Some of us hoped much from the *Revue des Sciences Médicales* of M. Hayem, which began its career at the commencement of 1873; but, although able and useful, it is heavy, slow, and appears in too great bulk, and at too long intervals. We want something short, sharp, pithy, and critical, giving us a digestible weekly meal, like the *Centralblatt* or the LONDON MEDICAL RECORD. I really think, indeed, it would answer the purpose of one of our publishers to translate the latter paper, and republish it here weekly. I think it would have a fine sale at once, and after a time it would have a very great sale, for it is more wanted here than with you.

We are going to have a new medical journal, the *Journal de Thérapeutique*, edited by M. Gubler, a famous therapist; and I trust it will be a little more cosmopolitan than our other journals are. Ferrier's researches are hardly known here yet, but I am told that they will presently be translated and published with a preface by Charcot; and it will be odd if they are not proved to have French antecedents, as M. Broca has shown to his own satisfaction to be the case with Hunter's treatment of aneurism by distant ligature, and Bellingham's treatment of aneurism by pressure.

PATHOLOGY.

COHNHEIM ON INFLAMMATION.*

(Continued from page 822 of the last volume.)

B. *Inflammation after the Application of Croton Oil.* The same set of appearances as already mentioned as being characteristic of acute inflammation, take place after the application of a drop of very diluted croton oil (one drop to twenty-five or thirty drops of olive oil, or of glycerine, on the tongue of the frog prepared as in the first experiment). The reagent is allowed to stay there for five or ten minutes, after which time it is wiped off. (A stronger mixture, or even this diluted mixture, acting for more than ten minutes, quickly produces complete stasis in the blood-vessels.) Immediately after the application of the above mixture, an enormous dilatation with increased velocity of the blood-current ensues in all the vessels of the injured parts. This condition of the vessels lasts for several hours. Gradually the circulation becomes slower, without, however, the vessels having become contracted, as in the former

* *New Researches on Inflammation.* By JUL. COHNHEIM. Berlin. 1873.

experiment. This decrease in the circulation commences in the superficial capillaries, in some of which it comes even to stasis, and extends to the veins, and finally also to the arteries. As soon as the circulation has become slower, the characteristic adhesion of colourless corpuscles takes place in the veins. This is soon followed by extravasation of only coloured corpuscles from capillaries, and of coloured and colourless corpuscles from capillaries with decreased circulation, whereas from the veins only colourless corpuscles extravasate. The number of capillaries with stasis gradually increases, and after twenty-four hours the circulation has also ceased in several veins, their contents being now arranged in a very characteristic manner, viz., coloured and colourless corpuscles being arranged in longitudinal sections corresponding to the previous adhesions of colourless corpuscles to the wall of the vessel. This represents the *itio in partes* of Samuel (see *Virchow's Archiv*, vol. xl.) It must be added that, as soon as stasis appears in the veins, there is an end of all extravasation and transudation. If a few drops of croton oil be rubbed over the inner and outer surfaces of the shaved ear of a white rabbit, no variation whatever is to be observed on the vessels during the first hour. After seventy or eighty minutes, however, a slight trace of general redness is to be observed; while at the same time the outlines of the vessels lose much of their sharpness and distinctness when inspected with the naked eye. The redness and swelling of the ear become gradually more marked; but, even two hours after the application of the croton oil, the characteristic normal pulsation of the arteries is still very distinct, and also in the veins there is no irregularity to be noticed. After one or two hours later the ear is extremely red and swollen, and very hot, and at the same time numerous small red specks and lines are observable, which are nothing else but hæmorrhagic points in the cutis as well as in the subcutaneous tissue. All these symptoms increase in their intensity during the next twenty-four hours. With the second day the process becomes again retrograde, generally with desquamation of the epidermis. In about four or five days the ear has returned to its normal condition. The microscopical examination of sections through the ear at different stages of the inflammatory process, proves that there is no abnormality as long as the ear does not show microscopically any abnormality; that the first swelling is due merely to exudation of an albuminous fluid, and that, as long as the process increases in intensity, the tissue of the ear becomes more and more infiltrated with emigrated blood-corpuscles, the superficial parts of the cutis, the tissue surrounding the hair-follicles and the loose subcutaneous tissue at the root of the ear-lobe being always most infiltrated. It is evident from this experiment that the dilatation and hyperæmia with increased velocity of the blood-current, immediately following irritation, do not necessarily belong to the series of the typical phenomena of an acute inflammation, but that these latter develop gradually, independently of any reflex mechanism, and that they are due to a gradual alteration of the wall of the vessels; for the whole series of phenomena invariably take place, not only if the sympathetic nerve of the neck have been cut through previously to the application of the croton oil, but also if the whole ear-lobe be placed in a ligature, with the exception of the median auricular artery and vein.

The assertion of Samuel that in the inflammatory

process stasis takes place in the veins, whence an impediment is established, the consequence of which is an intensive exudation of fluid and of corpuscles from the blood, is contradicted by Cohnheim, who maintains that such a stasis in veins during inflammation does not happen at all; for, if the veins of the inflamed ear-lobe be opened next to the inflamed parts, the blood flows from them drop by drop, exactly as in a normal ear-lobe.

C. *Traumatic Keratitis*.—In every case in which, after an injury of the cornea, the tissue of the latter becomes infiltrated with more or less numerous pus-corpuscles, an alteration has preceded in the vessels of the conjunctiva next the cornea, consisting chiefly in the very marked injection of the vessels. That this injection of the conjunctival blood-vessels is not the result of reflex action, can be proved, first by the fact that traumatic keratitis is very much favoured by cutting the fifth nerve, and secondly, by the following experiments. In a rabbit in which the facial nerve has been cut in order to avoid the frequent movement of the eyelids, a portion of the cornea two or three millimetres ($\cdot 078$ to $\cdot 118$ inch) in diameter is scraped off with a lancet-shaped knife; or the cornea is cauterised over a very small region with lunar caustic, care being taken that the caustic does not come into contact with the conjunctiva; or finally, the cornea is cauterised with the knob of a red-hot probe. In all these experiments, generally no injection of the vessels of the conjunctiva ensues, and the cornea remains perfectly transparent all round the injured part.

In those cases, therefore, in which, after an injury of the cornea, an injection of the conjunctival vessels does ensue and a subsequent opacity extends from the periphery towards the injured part of the cornea, there must be some other factor which produces that alteration of the vessels of the conjunctiva; it being proved by the experiments just mentioned that it cannot be due to a reflex action following irritation of the sensitive nerves of the cornea. Cohnheim takes it as very probable, that, in consequence of the traumatic injury, septic agents, produced by certain changes of the tissue, probably chemical changes, gradually extend from the seat of the injury towards the periphery until the vessels of the conjunctiva are reached, in the walls of which they produce an alteration, which gradually increases. The effects of this alteration are the above-mentioned injection of the vessels, and the subsequent infiltration of the cornea with pus-corpuscles. With this assumption agrees very well the fact that, after traumatic injuries which produce keratitis, the injection of the vessels of the conjunctiva, which is always the first symptom, does not immediately follow the injury, but takes always some time for its development. The very immediate conjunctival hyperæmia in man observable after a traumatic injury of the cornea, is to be accounted for by the very vehement rubbing of the eye, and the increased and energetic movement of the eyelids. If however in a rabbit, whose facial nerve has been cut through, keratitis be produced, e.g. after inserting a fine silk thread in the centre of the cornea, there is nothing abnormal to be noticed in the first hours; in the third or fourth hour conjunctival hyperæmia is observable which gradually increases, its acme not being reached previous to the twenty-fourth or thirty-sixth hour.

D. *Inflammation by Freezing or Heating*.—Abnormally high or abnormally low temperatures, not exceeding $+44^{\circ}$ Cent. or -4° Cent. (110° or 24.8° Fahr.), have no effect whatever on the circulation of the

tongue or of the web of the frog. Still higher degrees (50° Cent. 122° Fahr.) or still lower degrees (-7° or -8° Cent. = 19.4° or 17.4° Fahr.) produce a gradual decrease of the circulation, until finally absolute stasis is established, without any extravasation or transudation.

Better results are obtained on the ear of the rabbit. The ear is dipped into a vessel containing either a freezing mixture or hot water, where it is kept for a variable time according to the will of the experimenter. An ear which has been frozen stiff in a freezing mixture thaws when taken out again the more slowly, the longer the period during which it had been kept frozen, and the lower the temperature of the mixture. Very shortly after it thaws, its vessels become again filled from the arteries; the vessels dilate and the circulation in them goes on with great rapidity. If the temperature of the freezing mixture have not been lower than -6° Cent. (21.2° Fahr.) no other effect is produced, even if the ear have been kept at that temperature for a considerable time, for the vessels contract again and the ear assumes its normal appearance.

If, however, the temperature have been -7° Cent. or -8° Cent. (19.4° to 17.4° Fahr.) then the hyperæmic ear becomes swollen; it assumes a rosy colour; the swelling however does not increase very much, and in one or two days disappears again. If the temperature have been -4° Cent. (6.8° Fahr.) then the swelling is very marked, the ear becomes very hot, the swelling does not disappear so quickly and there is generally desquamation of the epidermis. If the temperature have been -15° Cent. or -16° Cent. (5° or 3.2° Fahr.) there is always suppuration in the depth of the ear, sometimes also partial necrosis. This latter is generally the case if the temperature have been -18° or -20° Cent. (-0.4° or -4° Fahr.) for then there are always excessive hyperæmia and hot swelling, which is followed by suppuration; the epidermis becomes detached in the course of the process in greater or smaller parts, and after two or three days the apex or various parts of the ear become necrotic. On microscopical examination, it is found that the swelling occurring after -7° Cent. or -8° Cent. is due to simple œdema. If the temperature to which the ear has been exposed have been still lower, the tissue of the ear is found to be infiltrated with pus-corpuscles, the number of which is the greater, the lower the temperature was and the longer it acted. The most numerous pus-corpuscles are to be found in the loose tissue at the root of the ear-lobe, then in the inner parts of the ear and in the neighbourhood of the cartilage.

Very similar are the appearances which follow abnormally high temperatures, lower degrees of heat 48° Cent. to 40° Cent. (118.4° to 120.2° Fahr.) producing simply œdema, higher degrees 50° Cent. + 53° Cent. (122° to 127.4° Fahr.) distinctly inflammatory changes; and still higher degrees, as 58° Cent. or 60° Cent. (136.4° or 140° Fahr.) producing more necrotic changes.

From the nature of these changes, and from the fact that ligaturing the ear with the exception of the median artery and vein previously to the application of the extreme temperature does not affect the result of the experiment, it is clear that it is to the vascular system these changes must be referred. That it is not the action of the extreme temperature on the blood itself which produces those changes, can be proved by emptying the vessels of the ear of their blood by injecting through them a 75 per cent. saline

solution, and then subjecting the ear to the extreme temperature; when after the experiment, blood is again allowed to enter the vessels, exactly the same appearances ensue as in an ear the vessels of which have not been emptied of their blood. It remains, therefore, only to refer those changes to the walls of the vessels having been altered by the action of the extreme temperature.

E. Inflammation after Exposure.—The appearances after exposing the mesentery or the wounded tongue of the frog to the atmospheric air have been fully described by Cohnheim in his former paper, (*Virchow's Archiv*, vol. xl.) where it was mentioned that first the arteries and then also the veins dilate, and that only the veins remain permanently dilated; farther that the velocity of the blood-current is at first generally increased but becomes gradually slower after a longer or shorter period, while at the same time colourless corpuscles become adherent to the wall of the veins; and finally, that a coagulable fluid exudates from the blood-vessels, together with colourless blood-corpuscles from the veins and coloured ones chiefly from the capillaries. The cause of these appearances must be looked for also here in the alteration of the wall of the vessels by the action of the atmospheric air. Whether this action lies in the air conveying the germs of organisms or not remains to be proved.

The hypothesis that, in the different inflammatory processes mentioned in the foregoing, the alteration of the wall of the blood-vessels represents the cause of all those symptoms that form the inflammatory process is supported by the following facts.

1. Obnoxious agents acting on the wall of the vessels exclusively, without coming into direct contact with other parts, produce all the symptoms of inflammation. To illustrate this, Cohnheim ligatures the ear of a rabbit at its base, with the exception of the median artery and vein; by allowing to pass through the vessels of the ear a weak saline solution, the vessels are emptied of their blood, and can be filled then with any obnoxious fluid which is allowed to flow out again through the vein. After all the remains of that fluid are removed by repeated injection of saline solution, the blood is again allowed to enter the ear. In this way Cohnheim found that pure diluted saline solution had no obnoxious effect whatever; that, after the injection of perfectly fresh serum of the blood of the dog or ox, the ear remained healthy in almost all cases, whereas, after the injection of distilled water, albumen of egg, serum of dog's blood, which contained traces of acetic acid or ammonia, especially diluted alcohol or ether, weak emulsions of oil of turpentine or croton oil, atmospheric air or even pure olive oil, which is allowed to remain in the vessels for a short time—either a typical inflammation ensues, often followed by a partial necrosis, or a smaller or greater part of the ear becomes at once necrotic.

2. It had been shown by Cohnheim in a former paper ('Researches on the Embolic Processes,' Berlin, 1872), that the temporary exclusion of the blood from a vascularised area is followed by changes which are probably due to a degeneration of the wall of the vessels, these changes being proportional to the duration of the exclusion; they consist in simple hyperæmia after a short duration of exclusion, in œdematous swelling after a longer duration, in extravasation of blood-corpuscles after a still longer duration, and finally, if the exclusion have lasted a still longer period, in stasis and necrosis. E. KLEIN, M.D.

MEDICINE.

EICHHORST ON THE HEREDITARY TRANSMISSIBILITY OF PROGRESSIVE MUSCULAR ATROPHY.—

Dr. Hermann Eichhorst contributes to the *Berliner Klinische Wochenschrift*, Oct. 20 and 27, a paper on the hereditary transmissibility of progressive muscular atrophy. Hereditary influence has not been as yet, Dr. Eichhorst thinks, sufficiently studied in the etiology of progressive muscular atrophy, though several accurate observers have published some cases in point; but these, in his opinion, ought scarcely to be regarded as true examples of hereditary transmission, inasmuch as they are only instances of brothers and sisters being similarly affected, without any history of their parents having suffered. Dr. Eichhorst communicates in this paper the morbid history of one family in which the hereditableness (*Erblichkeit*) of the disease in question is clearly established. He gives a genealogical table, from which it appears that this disease could be traced by tradition in the first three, and by actual observation in the rest of the members of the family through six generations, directly and collaterally; representatives of three generations are still living, and seven members are personally known to the author. The rule that the male sex are chiefly attacked, is borne out by this family with few exceptions.

In two of the cases the parents have escaped while the children have suffered, and these are, moreover, the only examples of accession before puberty. The disease began similarly in each one, viz., by wasting and enfeebling of the leg and foot, later of the hand and forearm, sometimes accompanied by pain. The affection of the hands occurred earlier in the younger patients.

Dr. Eichhorst thinks that the fact of the lower extremities being attacked first in his cases cannot be explained on the supposition of excessive muscular strain, because the patients were chiefly adult and occupied in hand-labour; but most probably it is the result of the hereditary influence.

He next gives in detail the particulars of the past history and present state of ten cases. The first, being the oldest member of the family examined, and in a high degree typical of the rest, we will give somewhat at length.

Dorothea Braun, aged seventy, was healthy and strong up to her thirty-sixth year, when she was confined to bed during six weeks, and suffered in succession from inflammation of the brain, nervous fever, and diphtheria. After these followed a miscarriage; from this time her legs began to waste, and in a few years her hands also showed signs of weakness; but for some time she could still go about and do a little domestic work. In the meantime she had been delivered of her seventh child (no aggravation of her symptoms occurring from her condition). A shock, occasioned by the sudden death of her husband, produced a rapid development of her symptoms. Pain in her wrists and finger-tips also supervened. At the present time there is considerable wasting of the forearm and hand, chiefly on the extensor surface, so much indeed that there is a deep groove between the radius and ulna; the tendons appear like tight strings. The thenar and hypothenar muscles are withered away; the fingers maintain a position of persistent flexion, any attempt to straighten

them causing severe pain. The thumbs alone are capable of abduction and extension. The skin of the part is cold and bluish. The lower extremities present well-marked talipes equinus: active dorsiflexion of the foot is impossible. The muscles of the lower part of the thigh, leg, and foot are wasted and feeble; the skin is cold and bluish. Respiration and circulation are quiet, the former being entirely costal. The expression of the face is intelligent; the mental faculties are unimpaired; the articulation of words is good, and the muscles of the eyes, face, and tongue are normal. The pharyngeal muscles are well nourished, but deglutition is difficult. The salivary secretion is suppressed. The fundus of the eye is normal. The thorax is flat, but well-formed. The extent of cardiac dulness is normal. The diastolic sound is more distinct than the systolic. The heart's impulse is concealed.

The other patients, descendants of the above, present very nearly the same physical characters, but there are a few points of peculiarity which may be mentioned.

In one, Hermann Braun, aged thirty-six, formerly an infantry soldier, the organs of circulation are seriously disturbed. The heart's impulse is felt in the sixth intercostal space, and extends a finger's breadth on each side of the left mammary line. The cardiac dulness is much more extensive than normal. Over the apex may be heard a systolic murmur following the first sound, and a diastolic murmur displacing the second. Over the centre of the sternum both murmurs are audible, but the systolic is the louder. A loud blowing sound, increased by pressure, may also be heard over the brachial and femoral arteries. Respiration is abdominal. The left pupil is more dilated than the right. This man dates his malady from exposure to cold and damp during his military service.

Another patient, Laura Kiel, aged forty, suffered some time, between the ages of five and sixteen, from chorea and epileptiform attacks. In her nineteenth year she had an apoplectic seizure, followed by loss of power of hands and feet. At the age of twenty-eight she had another apoplectic attack, with right hemiplegia, from which she recovered in three weeks. The catamenia became irregular, and she suffered from 'blood to the head' and vertigo. Since then the muscular atrophy has progressed as in the first case, but more rapidly. At the present she walks in a peculiar manner, lifting her leg high up, then jerking forward the corresponding side of the pelvis, and finally setting down the foot in a stamping, but purposeless fashion.

Ernst Braun, aged eight, one of the two children whose parents escaped the malady, learnt to walk later than usual. He has suffered from hooping-cough, some febrile disorder, followed by dyspnoea, epistaxis, and palpitation. Cardiac dulness increased, extending abnormally in a longitudinal direction. At the heart's apex, a soft murmur follows the second sound. Over the middle of the sternum the first sound is prolonged, and the second displaced by a bruit. There is a louder first sound and presystolic murmur in the second intercostal space. There is no distinct wasting of the muscles of the leg, but the extensors and peronei respond very badly to the induced current. (This is the condition also in the other cases). Talipes varus is distinctly present.

F. B., aged eight, the other child mentioned above, has never been ill before the present time, but like the preceding case, was slow in learning to walk.

There is as yet no perceptible wasting of the leg muscles, but a degree of uncertainty in his walk. There is talipes varus. The legs feel cold, but there is no discoloration of the skin of the part.

The remaining cases need not be specially referred to, the chief interest of the whole paper lying in the fact of all the patients being members of the same family. J. B. BRADBURY, M.D. (Cambridge.)

DISEASES OF CHILDREN.

REISLAND ON CASES OF SO-CALLED CEREBRAL PNEUMONIA IN CHILDREN.—Dr. Reisland relates in *Betz's Memorabilien* (vol. xviii.) three cases of pneumonia with delirium and high temperature ($104^{\circ}3'$ – $105^{\circ}3'$ Fahr.). The children were treated by being wrapped in cloths wrung out of ice-cold water, until the temperature was lowered. Recovery followed in all three cases. SAMUEL GEE, M.D.

FINLAYSON ON THE DANGERS OF DENTITION. Dr. Finlayson (*Obstetrical Journal*, Nov. 1873) analyses the returns of the Registrar-General with regard to the mortality due to teething, and considers that, although they contain some sources of uncertainty, they seem to show in a simple way changes and peculiarities in medical doctrine as to the dangers of dentition. The tables which he has compiled from these returns show, in England, a steady diminution in the mortality ascribed to teething, the maximum being 359 per million for the year 1842, the minimum 188 per million in 1870. The returns for Scotland exhibit a similar tolerably uniform decline, although starting from a much higher level, the maximum being 470 per million in 1857, the minimum 300 per million, reached in 1868; both being greatly in excess of the results given by the English returns—and the average mortality being 386, a proportion never once reached in the latter.

Certain fluctuations in the rate appear to be due to a rise coincident with the outbreak of some epidemic, or an unhealthy season of the year, and may be explained by the supposition that some cases of the prevailing disease were ascribed to the process of teething.

The influence of locality on this item of the general mortality is marked. The tables given by Dr. Finlayson show the proportion of deaths from teething in London and twenty-five other town districts to be more than five times as great as in certain country districts for the four years 1838 to 1841. Bad hygienic conditions being then so potent for mischief to children at the teething period, ought the deadly results to be attributed to the necessary physiological process, in itself alone trifling as a cause of death, or to these and other similar conditions known to be independently disastrous to infant life?

Dr. Finlayson points out the remarkable fact that one half of the deaths ascribed to teething are given as occurring within the first year of life, although the visible phenomena of teething seldom begin before the sixth month; and comparatively few deaths could plausibly be returned from this cause earlier than that age. Hence the process of teething during the remaining months of the year would appear to be more destructive than in the twelve months of the second year, during the whole of which time teething is going on actively. This is all the more remarkable, seeing that deviations from the natural course, and supposed to be perilous, all tend to throw the period later than usual. Is it reasonable to sup-

pose that incisors cause so much more danger than canine or molar teeth? Is it not more probable that the fatal illnesses of infants of early age, being more obscure and difficult to classify, tend to be huddled together into the convenient category of teething?

[There can be no doubt that a vast number of deaths occurring in infancy during the period of dentition are erroneously reported as caused by the teething process, when in reality due to some distinct affection. It is questionable whether any reliable statistics with regard to the actual mortality from teething can be deduced from the Registrar-General's reports, in which the term is so loosely used.—*Rep.*] W. B. CHEADLE, M.D.

SURGERY.

ROSER ON THE MECHANICS OF TRAUMATIC ANEURISM.—Professor Roser, of Marburg, has already pointed out that a series of secondary hæmorrhages depend upon the bursting of small traumatic aneurisms. He regards this as the rule in the arteries of the extremities, and not merely as the result of a single observation. Accurate examination shows that the sac consists of coagulated fibrin connected with the external coat, and not of connective tissue. The sac can in consequence be detached, so that the hole in the vessel itself can be found and then tied. The operation is easy, and can be performed without much assistance. After detaching the aneurism, the wound in the vessel may cause some trouble; in any case the artery must be examined, as two aneurisms of this kind may exist, one higher up than the other.

EDWARD BELLAMY.

BUSCH ON THE USE OF THE ACTUAL CAUTERY IN MYELITIS AND SPASMODIC TORTICOLLIS.—Busch (*Berliner Klinische Wochenschrift*, no. 37, 1873) strongly recommends the use of the actual cautery down each side of the spine and along its entire length in acute progressive myelitis. In spasm of the muscles supplied by the spinal accessory, causing torticollis, he has had excellent results from the application of the cautery along each side of the spine, from the occiput to the first dorsal vertebra.

T. LAUDER BRUNTON, M.D.

TILLAUX ON THE TREATMENT OF NÆVI BY MULTIPLE CAUTERY.—M. Tillaux presented to the Société de Chirurgie (Dec. 10, 1873) an infant whom he had relieved of an erectile tumour of the neck, of the size of a large mandarin orange (on the eighteenth day after birth) by multiple cauterisation with a stilette heated to redness. He introduced the heated stilette on thirty successive days, each day at a point of the circumference towards the centre, the successive cauterisations converging towards the centre. Central suppuration was freely established, and at the same time the tumour underwent complete resolution. There remained only of this large erectile tumour the trace of the cicatrization of the central 'crater' of suppuration.

SYPHILOGRAPHY.

FOURNIER ON DEEP OPHTHALMIA DURING THE SECONDARY PERIOD OF SYPHILIS.—Fournier (*Annales de Dermatologie et de Syphiligraphie*, 1872-3, no. 4) omits from this group iritis and keratitis,

which nevertheless differ more in seat than in anatomical characters from the affections of the deeper structures—choroiditis, retinitis, and inflammation of the optic nerve.

1. *Choroiditis*, most frequent of the deeply seated inflammations, though far less often met with than iritis, is of much greater consequence; if overlooked when recent, and not arrested, it may cause absolute blindness. The clinical signs are—slow progressive amblyopia, fog, *muscæ volitantes*, and dark spots. Fog is most commonly complained of. It is at first slight, then prevents reading and writing, and is often described by the patient to resemble a cobweb constantly floating before the eyes. The web is beset with numerous black spots. An additional sign is feeble definition of objects, their contour being lost, or as if the objects were seen through heated air. Others complain that every object appears covered with lace, or that there is constantly dust in the air. All the signs are more marked when the inflammation is at the posterior pole of the eye.

The ophthalmoscope reveals turbidity and flocculi of the vitreous body, muddiness of the papilla, and occasionally exudation on the choroid. The characteristic sign of the affection is the want of transparency of the posterior media of the eye, which prevents the observer from seeing the condition of the choroid itself. This want of transparency is due, according to Galezowski, not to flocculi in the vitreous humour, but probably to opacity of the posterior part of the hyaline membrane, as this turbidity is observed in patients long before flocculi are present. These come later, as threads of spider's web floating freely and twining in all directions with the movements of the eye. Sometimes they resemble twisted hairs or molecules of dust, filling up the vitreous body. The papilla, seen through this clouded medium, seems hidden by a veil or curtain, as the moon appears when it is seen through a cloud. Some observers consider this condition of the papilla pathognomonic of syphilitic choroiditis. In many cases of choroiditis the turbidity of the vitreous body and the cloudiness of the papilla are all that can be seen. In certain cases of some duration, white spots on the choroid may be detected, scattered in whitish or greyish groups. They denote points of atrophy of the choroid with resorption of the pigment, or of inflammatory exudation. Sometimes little coal-black masses of pigment lie next to or on the edges of these spots. In three cases Fournier states that he, in company with Wecker and Galezowski, saw these whitish spots arranged in horse-shoe groups. Such are the most important and ordinary symptoms of choroiditis; if energetically treated at an early stage, the eye recovers; otherwise it becomes worse and worse, the disorder spreads to other structures, the retina, the iris, and the optic nerve. Its course is insidious; free from pain, affecting the sight slowly, and even spontaneously allowing improvement of vision from time to time; but these improvements are invariably followed by relapses. Galezowski also says that now and then the disease proceeds by attacks of misty vision, almost amounting to amaurosis, alternating with periods where the sight is almost thoroughly regained.

2. *Optic Neuritis*.—Syphilis may attack the optic nerve without affecting any other part of the eyeball. This is rare; commonly the choroid, retina, &c., are implicated. It is usually limited to one eye. The characteristics, are rapidly increasing feebleness of sight; photophobia, especially at the beginning;

bright light in the eyes and coloured vision (photopsia and chromopsia). The ophthalmoscope shows the papilla badly defined; it may be impossible to see where it begins or ends. This is the most striking sign. The papilla is often rather to be guessed at than described. Tortuous vessels are sometimes also present.

3. *Retinitis*, sometimes seen alone, is usually either preceded or followed by choroiditis, iritis, &c. Commonly one eye only is attacked, though it often happens that the other eye is attacked by inflammation of some other structure. It is characterised by marked and increasing weak sight, dread of light, flashing of light, and partial colour-blindness. This increasing want of defining power, so that larger and larger type cannot be read, sometimes shows itself by complete loss of power on certain points of the retina, the patient being able to read one word and not the next, or seeing only half of the word, the other half appearing to be covered with an opaque spot. The constant flashing of light, compared by the sufferers to sparkling balls, fire-works, &c., is a very characteristic symptom of retinitis. The Daltonism shows itself by articles of compound colour having the hue of one of the primitive colours, light green appearing yellow; dark green, blue; violet, red. This Daltonism is, however, not special to syphilitic retinitis, but met with in many alterations of the retina.

The ophthalmoscope shows exudations and extravasations of blood (apoplexy) on the retina.

The exudations, which are the pathognomonic sign, are of two kinds; one being serous effusions or infiltrations, the other solid opaque exudations. The former, being transparent, allow the vessels to be seen as through a gauze curtain, which most frequently occupies the fundus and surrounds the papilla. The solid spots are white, without defined edge; sometimes large, sometimes small, scattered over the surface or ranged along the course of the vessels. Very often they form on the macula, and so completely destroy central vision. Less often than the preceding conditions, hæmorrhagic spots are observed on the retina; there is nothing special respecting them, and they are caused by rupture of veins. The progress of retinitis is always slow. The disease has stationary intervals, with stages of increase. Retinitis is the most curable of all the deep affections of the eye. Yet the prognosis depends greatly on the part of the retina attacked, the affections of the fundus being by far the most important.

These three forms are those met with in syphilis; but though separately described, they rarely occur singly in one patient. A strong characteristic of their syphilitic origin is their developing one after the other, or simultaneously, in different or even in the same eyes. In the majority of cases, the deeper affections are sequæ or companions of iritis. Again, when originating in the choroid, the disease, if not checked by energetic treatment, spreads to the retina and optic nerve, producing in course of years complete blindness from destruction of the retina or nerve, characterised by copious pigmentary deposit on the retina.

Having pointed out the difficulty in many cases of determining in a given case of inflammation of the deeper structures, whether it be due to syphilitic or to other cause, without reference to the patient's history or condition elsewhere, Fournier recapitulates the characters which are usually present in syphilitic disease. They are:—

1. Multiplicity and complexity of the lesions produced;
2. The localisation of the disease near the posterior pole of the eye;
3. The circular arrangement of the exuded matter;
4. The peculiar and rapid change in the transparency of the vitreous body and the misty condition of the bottom of the eye.

Nevertheless, however marked these groups of symptoms, they are not pathognomonic, and should be supported when making a diagnosis by reference to the antecedent and general condition of the patient. Unfortunately, however, these cases of syphilitic ophthalmia do not appear only in patients whose other symptoms have been severe; on the contrary, the patient's previous history in many cases shows a light course of the disease. In treatment, the extreme danger to the sight demands most active medication. Mercury, in its most energetic and soluble forms, and even in large doses, should at once be given; and mercuric inunctions should be, in Fournier's opinion—on account of its being the most certain way of bringing the system under mercuric influence—the invariable mode of treatment, without delay, and must be continued for a considerable period.

BERKELEY HILL.

MISCELLANY.

THE MICROSCOPICAL SOCIETY OF VICTORIA, which, at this early stage of its existence, has a good member-roll, has held its first general meeting at Melbourne, the president (Mr. W. H. Archer) being in the chair. A rich and varied collection of microscopes and objects was shown by members of the society, and during the evening these exhibits were examined with interest. The president, in delivering his inaugural address, explained that the society would consist of two classes of persons—viz., skilled workers, who were called members, and students and amateurs, who were called associates. Mr. Archer went on to say that in Victoria there were microscopists who were possessors of good instruments, and who knew thoroughly how to use them. The establishment of this society, it was hoped, would induce most of these gentlemen to co-operate, sooner or later, with one another, for though at intervals certain very valuable special professional work had been accomplished in Melbourne and elsewhere, yet so far as published results were concerned, not only Victoria, but Australia generally, was, microscopically speaking, almost altogether an unknown land. The address was followed by some interesting statements and demonstrations, and altogether the inaugural meeting was a very successful one. The holding of ordinary meetings has commenced, and the society appears to have a useful career before it.

THE DANGER OF WET COAL.—People who prefer wetting the winter's store of coal to the dust on putting it in their cellars do not, we believe, generally know that they are laying up for themselves a store of sore throats and other evils consequent upon the practice. But so it is said to be. Even the fire damp which escapes from coal mines arises from the slow decomposition of coal at temperatures but little above that of the atmosphere, but under augmented pressure. By wetting a mass of freshly broken coal and putting it into a warm cellar, the mass is heated to such a degree that carburetted and sulphuretted hydrogen are given off for long periods of time, and pervade the whole house. The liability of wet coal to mischievous results under such circumstances, may be appreciated from the circumstance

that there are several instances on record of the spontaneous combustion of wet coal when stowed into the bunkers or holds of vessels. And from this cause, doubtless, many missing coal-vessels have perished.

THE AMAZON TRIBES.—The Peruvian Amazon Exploring Commission lately issued a report, from which we find that malarious fever is prevalent on both banks of the mighty river, causing a large mortality among the native population. Adults and children are given up to the filthy habit of geophagy, or dirt-eating, a practice productive of innumerable physical evils. It is common to find on the Amazon children of three years of age smoking, and 'not averse to rum.' Altogether, the natives appear to be sunk in an abyss of moral filth and depravity from which nothing but a strong tide of European immigration can lift them.

FREAK OF NATURE.—Dr. W. H. Bent, of Argyle, N.S., reports the following peculiar case of monstrosity occurring in a child whose parents reside in Pubnico. It has three legs in perfect use, two complete sets of sexual organs (male). Two perfect arms, and two imperfect ones—the latter growing from the middle of the back and curving in a line with the lower ribs. The head is finely developed, and what appears to be a second one is situated half way down the left side of the neck. It is considered a great wonder among the French Acadians.

FUCHSIN AS AN ANTISEPTIC.—This anilin preparation is said by Launois, in the *Comptes Rendus*, to be a remarkably powerful antiseptic. One per cent. added to a solution of gelatine, not only preserved it, but a piece of fresh meat wrapped in paper soaked in this medicated gelatine solution kept for months without a sign of putrefaction. One forty thousandth part ($\frac{1}{40,000}$) added to urine, prevents it perfectly from decomposing. Such experiments merit careful repetition.

DUGONG BACON is said to have become an article of sale at Maryborough, and is described as being, when properly cured, a relishing article of diet, more especially for the breakfast table. It is said to have the flavour of good bacon with just an agreeable 'bloater' twang added.

TWENTY dollars a day is the amount of fine incurred by the law of Nova Scotia, coming in force on May 1, for practising medicine without being registered.

NOTICE.

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The London Medical Record.

WEDNESDAY, JANUARY 14, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

THE MICROSCOPIC CHARACTERS OF ATMOSPHERIC DUST.*

This investigation was undertaken in order to ascertain whether any connection could be established between the microscopical characters of the organised particles found in atmospheric dust, and the prevalence of epidemic diseases. The observations were made in Calcutta and the neighbourhood.

The author employed for the purpose of collecting the formed particles contained in the air the instrument first devised by M. Pouchet, to which he gave the name 'aeroscope.' This instrument, which has been modified by various observers, particularly by Dr. Maddox (see his paper on the subject in the *Monthly Microscopical Journal* for 1871), has been further improved by Dr. Cunningham. As now used it consists of a large vane, to the axis of which a funnel is fixed horizontally in such a way that its mouth faces the wind. The tube of the funnel is drawn out to a capillary orifice, opposite to which an ordinary cover-glass can be so placed that the current of air as it issues from the orifice is directed against it. After a few hours, or days, the exposed surface of the glass becomes covered with a more or less circular layer of dust, which can be examined microscopically with great ease after the addition of water or other suitable liquid to the deposit. This apparatus was set up at Calcutta and in the suburb of Alipore, in the open air. It was also used to examine air derived from the Calcutta sewers. The method of recording the results was to figure every object of organic form that presented itself in the dust disk. The results were as follows.

1. That bacteria 'can hardly ever be detected among the constituents of atmospheric dust,' but 'are frequently to be found amongst the particles deposited from the moist air of sewers.'
2. That 'the addition of dry dust which has been exposed to tropical heat, to putrescible fluids, is followed by a rapid development of fungi and bacteria, although recognisable specimens of the latter are very rarely to be found in it while dry.'
3. 'That spores and other vegetable cells are constantly present in atmospheric dust, and usually occur in considerable numbers. The majority of them are living and capable of growth and development.'
4. That no connection can be traced between the number of organisms present in the air, or the presence of any special form of organism and the prevalence of any epidemic disease.
5. That the amount of inorganic and amorphous particles

suspended in the air is dependent on the moisture of the atmosphere and the velocity of the wind, but that these conditions do not influence the number of organised particles.

The research is important, as affording evidence more decided and more positive than any which has yet been published, (1), that atmospheric dust consists largely of organic forms (in contradiction to the assertions of the French heterogenists), and (2) that these forms are almost entirely those of spores of fungi. The most important results bearing on pathology are first, the additional proof given that bacterial matter can be carried in the air in such a state as to determine the contamination of liquids capable of supporting bacterial life, even when the air is much drier than it ever is in Europe; and secondly, the confirmation which it affords of previous observations, that bacteria exist in atmospheric dust so sparingly that in general they cannot be detected.

J. BURDON SANDERSON, M.D.

CREMATION.*

There exist five ways of disposing of a departed brother; firstly, by eating him; secondly, by deputing that office to the beasts of the field or the fowls of the air; thirdly, by embalming and mummifying him after the method of the ancient Egyptians, or by petrifying him into a stony material, capable of being cut up into slabs, as was recently seen in the remarkable table exhibited by a Florentine professor; fourthly, by burying him in the ground, and trusting, somewhat rashly, the disinfecting power of Mother Earth, as is the practice in these degenerate days; fifthly, by cremation, or the destruction of the soft parts of the body and the calcination of the bones by fire.

Other methods of abolition exist; for instance, the committal of the body to the deep, the use of quicklime, and the employment of caustic potash. The two former may be dismissed as only susceptible of occasional or local application, and the latter as involving the reduction of the human form divine to a soapy consistency—an unwholesome and repulsive idea.

Of the five principal systems, the first is inapplicable to the fastidious tastes of a civilised people. The second is barbarous and wasteful. The third is alike unpractical, wasteful, and expensive. Thus the whole question resolves itself into the consideration of the rival methods of inhumation and cremation.

Inhumation possesses, among Christian nations, the advantage of prescription. A certain halo of sanctity surrounds the churchyard, and a sickly sentimentality induces nations to persevere in a practice at once irrational and unhealthy. Among the ancients, during many periods, cremation was the prerogative of the noble, and among the Hebrews was a privilege reserved for the mighty and honourable dead. The bodies of the vulgar appear to have been buried anywhere, but those of the great were almost invariably burnt—the calcined bones being collected, placed in an urn, and preserved with due reverence. The affection of Christian nations for inhumation can only be explained by its divergence from the pagan ceremony of cremation, inasmuch as, viewed chemically and economically, the adoption of interment, far from being an advance in civilisation,

* On Microscopic Examinations of Air. By D. DOUGLAS CUNNINGHAM, M.B. (Appendix to the Ninth Report of the Sanitary Commissioner with the Government of India, 1872.)

cannot fail to be regarded as a decided retrogression—substituting, as it does, the tardy and uncertain action of nature for the rapid and positive methods prescribed by science. The law of nature is—change; and the mortal envelope of man is no sooner bereft of the soul than, if left to itself, it immediately undergoes the operation of those physical laws which reduce its constituent elements into more simple combinations—that is to say—to water, to gases (among which carbonic acid gas, carburetted hydrogen, and ammonia, largely predominate), and to mineral salts (lime, magnesia, potash, soda, and oxide of iron). By the combination of these various bases with phosphoric and carbonic acid are formed certain special and well-known salts (carbonates and phosphates of lime, magnesia, &c.) As a general rule, it may be assumed that the human body contains seventy-five parts of water to twenty-five parts of solid matter. The gases are assimilated by the vegetable world through the agency of the leaves of plants; while the salts, combining with the earth, contribute to nourish their roots. Thus, in obedience to the law which pronounces matter indestructible, the mortal part of man gives back to the earth the phosphates, carbonates, and other fertilising solids drawn originally from the storehouse of nature. Man, beasts, and plants die and decompose, not only that they may give place to other organisms, but that their remains may serve as pasture for succeeding generations. Embalming and petrification, besides being costly and troublesome processes, labour under the disadvantage of crowding the earth with inactive matter, and are far more opposed to natural laws than the prevalent system of inhumation, under which man literally pays the debt of nature by giving back to Mother Earth all that he has taken from her. Mummification of all kinds is also attacked on the ground that, if the Egyptian method prevailed over the whole surface of the earth for about three thousand years, the dead would displace the living, and the whole world be covered with a stratum of mummies. Inhumation, then, is a far more philosophical system than embalming and petrification, inasmuch as it permits the unimpeded operation of the laws of nature.

Unfortunately, however, inhumation is attended with certain serious inconveniences. Graveyards and cemeteries, crowded with decomposing masses of humanity, exercise a prejudicial influence on the health of the living who have been foolish enough to allow themselves to be inconvenienced by the dead. Suggestions have been made that cemeteries should no longer be considered perpetual, but should be closed at the end of a certain time, and ten years after the last funeral should be yielded back to agriculture. It is difficult to believe that a system of moveable cemeteries would, in the present state of human knowledge, obtain the sanction of the popular voice. The consumption of vegetables whose roots had been nourished by the defunct members of a family would hardly be enjoyed by the survivors, unless, indeed, they possessed the philosophic mind and robust appetite of the French gentleman who declared that, with a certain sauce, *on mangerait bien son père*.

Two of the principal drawbacks to inhumation are the infection of the air and the contamination of water. All precautions to the contrary notwithstanding, a mass of decomposing organic matter cannot fail to fill the air with unwholesome and mephitic vapours which, although charged with

matter valuable to the vegetable world, exercise a deleterious influence on mankind.

Still more destructive is the infiltration of water highly charged with organic matter into wells, springs, and streams used for drinking purposes. Contagion and death have many a time and oft been shown to be due to the infiltration of graveyard water. Dr. Prosper de Pietra Santa, who has devoted much research to this important subject, cites the example of the hamlets of Rotondella and Bollita. The cemeteries of these unfortunate villages were situated on the summit of wooded hills (at the distance duly prescribed by law), and to all outward appearance were installed under exceptionally favourable conditions. Unfortunately, the springs destined to the daily use of the inhabitants emerged from the base of the hills surmounted by the cemeteries; and as these springs were the product of the rain-water, which, falling on the surface of the cemeteries had filtered through the ground, and had become impregnated with the organic matter encountered during this process, a time at length arrived when the drinking water of these two villages became sufficiently contaminated to produce a frightful epidemic.

For several years past the doctors of Italy have been arriving at the conviction that the only escape from the inconvenience and unhealthiness of inhumation is to be found in a recurrence to cremation. Drs. Polli, Gorini, Brunetti, and Pini have devoted great attention to the practical details of the operation, and the result of their experiments cannot fail to interest sanitary reformers in this and other countries. Dr. G. Pini assisted at a cremation at Florence. This was no mere experiment, but the funereal rite of an Indian prince, the Rajah of Kellapore. On the banks of the Arno were enacted the ceremonies nightly performed on the banks of the sacred streams of India, the Ganges, the Krishna, or the Tummā. At the hour of midnight, the mortal remains of the Indian prince were carried to the banks of the river. The funereal pile consisted of a heap of wood, about five feet square, firmly fixed and secured to the ground by seven bars of iron. A second heap of wood was thrown loosely around. After certain religious ceremonies, the pile was powdered with camphor and other aromatic substances, and the dead rajah was laid upon it. The body was anointed with pure naphtha, the features covered by a mask of some greasy substance, and all the limbs covered with resinous matter, betel leaves, perfumes, and powdered sandal-wood. The corpse was then covered with more layers of wood, alternated with inflammable substances, and the next of kin to the prince set fire to the pile. Although the flame was fanned by a strong wind, the body was barely consumed at seven o'clock the next morning. At ten, when the fire had almost entirely burned out, nothing remained but a heap of ashes. An Indian priest collected a small quantity from the centre of the heap. The remainder was thrown to the wind, in the direction of the current of the Arno.

Although this operation was, on the banks of the Arno, attended with the success constantly witnessed in India, it must be admitted that it proved not only tedious but expensive. Ten hours consumed in the destruction of a human body must appear to Western nations an enormous space of time, and the cost of precious woods, resins, and oleaginous substances, would in itself act as an efficient bar to the general adoption of the Indian method.

It cannot be denied that cremation is an operation of considerable difficulty when attempted in the open air. The experience of Byron and Trelawny in burning the body of Shelley is a case in point. Mr. Trelawny 'got a furnace made at Leghorn, of iron bars and strong sheet iron, supported on a stand, and laid in a stock of fuel and such things as were said to be used by Shelley's much-loved Hellenes on their funeral pyres.' The bodies of Shelley and Williams had been for some time in the water, had been buried in the sea-sand, and were, when exhumed, in an advanced state of decomposition. The body of Williams was first disinterred, and presented a hideous spectacle. 'The funeral pyre was now ready; I applied the fire, and the materials being dry and resinous, the pinewood burnt furiously, and drove us back. It was hot enough before, there was no breath of air, and the loose sand scorched our feet. As soon as the flames became clear, and allowed us to approach, we threw frankincense and salt into the furnace, and poured a flask of wine and oil over the body. The Greek oration was omitted, for we had lost our Hellenic bard. At four o'clock the funeral pyre burnt low, and when we uncovered the furnace, nothing remained in it but dark-coloured ashes with fragments of the larger bones. Poles were now put under the red-hot furnace, and it was gradually cooled in the sea. I gathered together the human ashes, and placed them in a small oak box, bearing an inscription on a brass plate, screwed it down, and placed it in Byron's carriage.' This operation may be designated fairly successful, but the burning of the body of Shelley was attended with peculiar circumstances. 'I had taken the precaution,' continues Mr. Trelawny, 'of having more and larger pieces of timber, in consequence of my experience of the day before of the difficulty of consuming a corpse in the open air with our apparatus. After the fire was well kindled, we repeated the ceremony of the previous day, and more wine was poured over Shelley's dead body than he had consumed during his life. This, with the oil and salt, made the yellow flames glisten and quiver. The heat from the sun and fire was so intense that the atmosphere was tremulous and wavy. The corpse fell open, and the heart was laid bare. The frontal bone of the skull, where it had been struck with the mattock, fell off; and, as the back of the head rested on the red-hot bottom bars of the furnace, the brains literally seethed, bubbled and boiled, as in a cauldron, for a very long time. The fire was so fierce as to produce a white heat on the iron, and to reduce its contents to grey ashes. The only portions that were not consumed were some fragments of bones, the jaw, and the skull, but what surprised us all was that the heart remained entire. In snatching this relic from the fiery furnace my hand was severely burnt, and had any one seen me do the act, I should have been put into quarantine. After cooling the iron machine in the sea, I collected the human ashes and placed them in a box, which I took on board the *Bolivar*.'

It is not our purpose to discourse on the taste displayed by the author of this highly sensational description, but the technical details demand some attention. Aware from the first of the difficulty of burning a corpse, Mr. Trelawny provided himself with a furnace, which seems to have done its work very well when aided by a large quantity of excessively dry and resinous fuel. Oil appears also to have been freely used, but even with all these ap-

pliances the operation lasted for a considerable time. From the ghastly experiment on the body of Shelley and the tedious and costly process successfully employed in the case of the Rajah of Kellapore, it appears evident that the ancient method of cremation by means of a funeral pile is tiresome, expensive, and subject to occasional failure. It remains, then, to examine those methods which call into requisition the resources of modern science for the purpose of insuring perfect incineration of the tissues and thorough calcination of the bones within a reasonable time, and at such moderate cost as may render their general adoption practicable.

At the Milan gasworks, Dr. Polli made a notable experiment. In a cylindrical retort of refracting clay used for the distillation of coal-gas, was placed the body of an unfortunate poodle dog, drowned for contravention of the muzzle laws promulgated by the police. The dog weighed twenty-two and a half pounds. The apparatus was heated by a crown of flames issuing from a perforated circular tube. In order to render combustion as active as possible, the coal-gas was mixed with a certain quantity of pure air. Our readers will recollect that this addition of atmospheric air is the principle of the Bunsen burner, which ensures perfect combustion of coal-gas, and produces a maximum of heat with a minimum of light. The cremation lasted several hours, producing a thick smoke, with an odour of roast meat. After carbonisation, the skilful chemist succeeded in obtaining complete incineration, that is to say, the calcination, of all the solid parts of the body, which weighed one pound fourteen and a half ounces.

Satisfied with the result of this experiment, which proved the possibility of reducing the carcass of an animal to ashes by ordinary coal-gas, Dr. Polli proceeded with a second and more complete experiment. One improvement was the disposition of a vertical retort in such manner as to consume the gaseous products of combustion. This is easily effected by placing at the upper orifice of the retort a second ring of gas jets. On this occasion, better arrangements were made for carrying out the principle of the Bunsen burner, with the result of producing the complete incineration of a dog weighing forty-two and three-quarter pounds in the space of a couple of hours. On this occasion the solid residue weighed only two pounds three ounces. Dr. Caffè mentions the idea of an engineer, M. Rudler, who suggests the utilisation of the gaseous products. Burnt in a retort by coal-gas, the body consumed may be made itself to yield illuminating gas, a process which possesses, at least, the merit of economy.

Professor P. Gorini, the author of an important work, '*I Vulcani Sperimentali*,' made some interesting experiments in his laboratory at Lodi during the month of September last. These were witnessed by a brilliant meeting of scientific men. The process of Dr. Gorini differs materially from those practised by other professors of the art of cremation. A substance, the composition of which is still a secret, but which we are probably not far wrong in supposing to have been a mixture of caustic soda with nitre, or with chlorate of potash, was melted in a crucible at a very high temperature. On the liquid attaining the proper degree of ebullition, portions of a human body, legs, arms, &c., were thrown into it. The moment the limb touched the incandescent liquid, it was enveloped in flames, and in the space of twenty minutes was completely destroyed, the volatile part

disappearing in the form of gas, while the fixed solids, calcined and incinerated, remained at the bottom of the crucible on a metal grating. The receptacles or crucibles are made of earthenware, and the furnace, built of simple bricks built up without cement, is heated by coke. This experiment was completely successful, the work of destruction being accomplished without any disagreeable crackling sound or unpleasant odour. The gas was allowed to escape to nourish the vegetable world, and the ashes were committed to the earth to replace the metallic bases previously contributed to the formation of a human body.

Few have given more time and study to practical cremation than Professor Brunetti. This gentleman sent a case of apparatus to the Vienna Exhibition, and records his conviction—arrived at after five experiments upon human bodies—that the total incineration of a corpse and the complete calcination of the bones by fire is, under ordinary conditions, impossible. He has tried various combustibles, gas retorts, closed vessels, and the open air, and has arrived at the conclusion that special apparatus is indispensable to the success of any attempt at perfect cremation. His apparatus consists of an oblong furnace built of ordinary, or, still better, of refracting brick, and furnished with ten side openings, in order to give the power of regulating at will the draught, and consequently the intensity of the fire. In the upper part is a cornice of tiles, destined to support an iron framework, above which is the dome-shaped roof, furnished with cast-iron shadows, which may be opened or closed by means of regulators, to shut in the flame and concentrate the heat. The body to be incinerated is placed upon a thin metallic plate, suspended by stout iron wire. The operation may be divided into three sections; firstly, the kindling of the body; secondly, its combustion; thirdly, the incineration of the soft parts and the calcination of the bones. Wood having been piled up in the furnace and lighted, the body catches fire at the end of half an hour. A considerable quantity of gas is now evolved, and the movable shutters come into operation. The body then burns freely; and if the pile of wood have been deftly arranged, complete carbonisation ensues at the end of a couple of hours. The shutters are then opened, another sheet of metal is lowered over the carbonised mass, to concentrate the heat still more, and the wood is renewed. By means of this apparatus, and at the cost of 160 or 180 pounds of wood, complete cremation is achieved in two hours more. When the furnace is cold, the residue is collected and placed in a funeral urn. The last experiment of Dr. Brunetti was made upon the body of a man who died, at the age of fifty, of chronic bronchitis. The weight of the body was 114½ pounds, and was reduced by cremation to a fraction under four pounds. It has been suggested that, when extreme solicitude is felt as to the identity of the ashes, the body might be wrapped in an asbestos winding-sheet.

These experiments were suggested at the Medical International Congress, held at Florence in 1869, by Professors Coletti and Castiglioni; and the opinion of these authorities was supported by a resolution of the Congress expressing a wish that 'every possible means should be employed to obtain legally, in the interest of the laws of hygiene, that the incineration of bodies should be substituted for the present system of inhumation.' A similar vote was passed at the Congress held at Rome in 1871, and recently

the Royal Institute of Science and Letters of Lombardy has offered the quinquennial (1877) Secco-Commeno prize to the advocates of cremation in the following terms.—'Indicate a method of cremation of dead bodies, such as may be substituted for the present method of inhumation, in order to prepare the way for this hygienic reform. The object is to demonstrate by arguments, supported by experiments upon animals, that the method is free from inconvenience, that it is expeditious and economical, and of a nature to respect civil usages and customs and the proprieties of social life.'

It is—to say the least—remarkable that the experiments practised in Italy should have been overlooked in this country, where sanitary laws and sanitary questions attract, very properly, a large share of public attention. An absolutely perfect method of cremation fulfilling all the conditions laid down by the Royal Institute of Lombardy, has perhaps, yet to be discovered, but it is remarkable that successful experiments have already been performed with so poor a fuel as wood. Of the three modern methods described, the process of Dr. Gorini is incomparably the most rapid. An operation requiring only twenty minutes throws completely into the shade the furnace of Dr. Brunetti—otherwise an entire success—and the retort advocated by Dr. Polli. The only objection to Gorini's method is its expense. At present the combustion of a single body costs nearly 3*l*., a sum far too high to admit of its general adoption; but it is affirmed that this expense is only incurred on account of the necessity of employing a large quantity of fuel to fuse the material employed in the actual cremation. This high temperature once attained, the incandescent material will serve for the destruction of many bodies. The expense, therefore, will diminish in proportion to the number of 'subjects.' For instance, if a dozen were operated on at the same time, the cost of each cremation would be reduced to five or ten shillings.

This is really the most important consideration of all. The ancient pyre, under favourable conditions, does its work well, but slowly, and labours under the disadvantage of costliness. The retort system of Dr. Polli occupies, in common with the ancient method, a considerable space of time, and a similar objection applies to the Brunetti process. This latter system possesses the merit of economy in fuel, but should Gorini's prove, in practice, equally inexpensive, its tremendous rapidity would give it precedence over every method yet discovered.

At the first glance, it is difficult to see what objection could be raised by a practical people against cremation, either on the score of public decency or of proper veneration for the dead. By cremation the rapid action of fire is substituted for the slow, but precisely similar, process of decomposition. Once adopted, the proceeding would appear natural enough. The funeral procession would halt at the chapel of the cemetery. After the solemn and touching funeral service had been performed, the corpse would be lowered into a vault, and subjected, *non coram populo*, to the Gorini process, or some other more perfect method yet to be invented. A short space of time might be profitably spent in prayer or meditation. At the conclusion of this period, the ashes of the dead would be rendered back to his family, in an appropriate urn, which might be placed in a vault or in such other receptacle as might be deemed more

fitting, or the ashes themselves might be committed to the earth. No rational sentiment of love or veneration would thus be violated, and the ceremony, while losing nothing in dignity and solemnity, would be deprived of much unnecessary repulsiveness. Another, but by no means unimportant consideration is, that the dread of premature interment—a terror acutely felt in hot countries where almost immediate inhumation is rendered necessary by the climate—would be effectually disposed of. Nevertheless, numerous objections have been raised. It has been urged that the complete destruction of a corpse would at once hold out a premium to poisoners by destroying all possibility of detection; but this consideration is hardly of sufficient weight to induce the destruction of innumerable lives, by pestiferous air and contaminated water, to secure the detection of a few criminals. Sentimental objections have already been dealt with, but it is singular to find that the proposed introduction of cremation has raised a storm among archaeologists, who, ignoring the printing press, have imagined that without the records of the tombs, the present age, its acts and deeds, might pass away from the ken of posterity as completely as the ancient civilisations of Central America and Malacca. Objections of this kind can only provoke a smile, as, even if dire oblivion should be the ultimate doom of the nineteenth century, the opinion of the world 2,000 years hence is of little moment when compared with the health of those now inhabiting it. In the words of the learned rector of the University of Padua, Professor Coletti, 'Man should disappear, and not rot; he should no more be transformed into a mass of corruption—the source of filthy and injurious exhalations—than into a grotesque mummy—a shapeless mixture of pitch, resin, and perfumes. Man should become a handful of ashes, and nothing more.'

Although very thoroughly impressed by the opinion of the learned Paduan, we cannot shut our eyes to the obvious truth that the advocates of cremation have before them a long and difficult task. Man is unfortunately more frequently governed by prejudice than by reason. We are, therefore, quite prepared to hear cremation denounced as disgusting, heathenish, abominable, Popish, brutish, and atheistic. Nevertheless, the time has come when some effort must be made to abolish the evils inseparable from inhumation in thickly inhabited countries, where the health of the living is often seriously affected by crude and unscientific methods of disposing of the dead. Vast improvements have been made in the art of preserving life, and it is surely a small thing to ask that science should prescribe an unobjectionable method of dealing with the material remains of dead humanity. The invention, publication, and ample discussion of improved methods of cremation can hardly fail to prepare—in time—the public for the adoption of a system against which can be urged few objections beyond those of a purely sentimental nature.

CLINICAL LECTURE ON THE TREATMENT OF DISEASES OF THE HEART, AND THE HYGIENE PROPER FOR THEM. DELIVERED AT THE HÔPITAL ST.-ANTOINE, PARIS. BY DR. PÉTER.

In the presence of organic disease of the heart in the adult, it is useless to cherish delusions by hoping for cure. The disease is incurable; and the only

thing to be hoped for, which is much, is to retard the evolution of the disease, to combat the but too near advent of asthenia of the vessels and heart, the production of visceral lesions, and, indeed, the whole series of subordinated symptoms.

Palpitations appear at the commencement of the cardiac disturbances, and are characteristic of the first phase of heart-disease. They are not only to be dreaded as functional disturbances, but because they constitute the primary cause of hypertrophy of the heart. Digitalis is most commonly used as a resource against them, and numerous theories and experiments respecting the way in which this substance acts have been accumulated; the only thing thoroughly ascertained about it being that, in moderate doses, it calms palpitation of the heart. It is, however, a remarkable fact that it exercises this influence over palpitation where there is cardiac lesion, whilst it scarcely seems to possess any power over nervous palpitation. M. Péter prefers digitaline, because it is easier to use, and does not produce sickness. He prescribes a granule containing one milligramme to be taken every morning; and if that be not sufficient, he increases the dose to two, one in the morning and one in the evening, scarcely ever going on to four or five. For nervous subjects he adds ether, cherry-laurel water, or chloral; the ether in the very convenient form of pearls (from two to four or six during the day), the cherry-laurel water (*aqua laurocerasi*) in the simple form of five to ten drops on a bit of sugar twice or thrice a day; and finally the chloral, if sleep be defective, in doses of from two to three pearls in the course of the evening.

Pain is another indication for therapeutic treatment; it is situated above the nipple in the upper sternal region, and is either spontaneous or brought on by pressure. It would be attributable to the spreading of the lesion to the cardiac plexus, or to the existence of a cardio-aortic lesion. It is not only painful, but constitutes a menace of sudden death. The pains are accompanied by great anxiety. If the suffering be acute, we must not hesitate in applying half a dozen scarifying cupping-glasses or leeches over the submammary region; if the danger be less pressing, blisters will suffice. Apply one of the size of the palm of the hand to this region; when it is dried up, put four or five little ones over the præcordial region. From 4 to 6 or 8 grammes (1 to 2 drachms) of bromide of potassium should be taken every day for some time. It produces a remarkable sedative effect on cardiac disturbance and the concomitant dyspnoea. It is even of advantage to continue the use of bromide of potassium from eight to ten days, gradually diminishing the dose, which should never fall below one gramme. At the moment when the access is most marked, administer from two to four or six ether pearls at intervals of an hour, or the official preparation in drops on a piece of sugar. If the attacks of pain or dyspnoea reappear at short intervals, we must apply the actual cautery to the submammary region, in the second or third intercostal space near the sternum. If the pain be not intense, or if the patient be a woman, a Milan fly should be applied once a week, and at the same time the region of the heart should be painted with tincture of iodine night and morning for three successive days.

In a second period, called by M. Péter the chemical period, hæmostatic troubles result from the stasis of the blood in the lungs, and the excess of tension in

the pulmonary arteries, whence dyspnœa and anæmia supervene. In order to relieve the congestion of the pulmonary arteries, it is useful to excite their secretory machinery; and for this purpose M. Péter prescribes kermes mineral and ipecacuanha. The kermes should be given in doses of 5 centigrammes ('075 grain) in the course of a morning, in the form of a lozenge, for instance, of which eight contain nearly 5 centigrammes of kermes; the patient sucks them in the course of a morning. He gives ipecacuanha in the same form; six pastilles, containing 10 centigrammes of powder, in the course of a morning, in order to obtain a purely expectorant effect; or in the space of an hour, if it be desired to bring on nausea, which is a good means of relieving the congestion, since by contracting the size of the vessels it accelerates the circulation. He advises that these agents should only be used once in the week or fortnight, this being a general basis for treatment, the indications for which are specially drawn from the degree of dyspnœa existing. He, however, recommends the daily use of balsamic preparations, especially balsam of tolu, which keeps up a salutary secretory hyperæmia on the surface of the respiratory mucous membrane. The tolu is given in the form of syrup, 50 or 60 grammes daily, and lozenges, of which the patient takes twenty in the course of the day. The tolu balsam may also be associated with Canada balsam in a conjunction of equal parts of syrup of tolu and Canada balsams. When there are bronchial râles, a drink composed of infusion of pine-shoots sweetened with syrup of tolu should be ordered. When there is bronchial congestion, Morton's balsamic pills are also an excellent medicine, given in doses of one or two every two or three days. We must not despise as an adjuvant, the making the patient inhale ordinary aromatic salts frequently during the day; these inhalations not only act on the nervous system, they likewise stimulate strong inspirations which, on the one hand, help by mechanical means in removing the congestion of the vesicles by forcibly relaxing them, whence ensues the flowing back of the blood which circulates in their walls; whilst, on the other hand, the inspirations are directly beneficial to the hæmatosis by causing strong columns of air to penetrate the lungs. For the same reason, compressed air-baths may be useful. For the prevention of these congestions it may be useful to have irritant frictions made with Fioraventi's balsam on the anterior part of the thorax. But when the patients are suddenly attacked with symptoms of suffocating catarrh of diffused capillary bronchitis, there must be no hesitation in opening the passages freely, in using scarifying cupping-glasses, in administering an emetic at proper intervals.

For the anæmic condition, preparations of iron are indicated, but most specially hydrotherapeutics. M. Péter prefers the application of simple or modified lotions to his patients to the use of the douche, which gives too great a shock. Hydrotherapeutic treatment is besides the best preventive of those pulmonary accidents which give rise to more or less formidable pulmonary congestions. In the third stage, or period when we meet with multiplied visceral congestions, the medication should be of a very varied character, the capital indication being always to remove the congestion of the lungs and liver.

For this purpose drastics and diuretics are indicated, but must be used with caution. For instance, enormous doses of German brandy are commonly

administered when 5 grammes would be sufficient; and if this dose be too weak, it can be doubled with advantageous effect, and without any risk to the patient. M. Péter often orders the following electroly prescribed by Cruveilhier.

| | |
|--------------------------|------------------|
| Powdered senna . . . | 4 grammes. |
| " scammony . . . | 1 gramme. |
| " gamboge . . . | 30 centigrammes. |
| " jalap . . . | 4 grammes. |
| Syrup of buckthorn . . . | 30 grammes. |
| Honey . . . | 30 grammes. |

A teaspoonful of this mixture should be given in the morning, the dose being increased to two or three if necessary. Plethoric patients should be bled, but very slightly; and the operation should not be repeated, even if the patients request it. Local blood-letting is often indicated. When the patient is too anæmic to be bled, blisters may be of great use.

With regard to the digitalis, which is given in such a matter-of-course way, it should only be prescribed when there are insupportable palpitations, and then only for a few days in that asthenic period, so as not to diminish the contractile power of the heart. It must not be used when the contractions are feeble, when there is cyanosis, intense visceral congestions or drowsiness. The heart and the great vessels must then rather be stimulated by the help of frictions on the skin made with alcoholic tinctures; quinine, the aromatic alcoholates of cinnamon or peppermint, wine, brandy, ether, acetate of ammonia, and above all coffee, may be administered internally. At its outset, dyspnœa is connected with palpitations, and is calmed by digitalis and acetic and sulphuric ether; later on, it is the result of pulmonary congestion, a complication for the relief of which we have indicated the necessary measures. Finally, in the third period, dyspnœa results from cardio-vascular asthenia, with pulmonary cedema. In this contingency, bromide of potassium in from two to five gramme doses gives wonderful results.

As to the occasionally persistent and distressing sleeplessness, it must on no account be combatted by opiates, which completely destroy the already small appetite; we must here also administer the bromide of potassium in rather large doses of from two to six grammes, or chloral, which sometimes succeeds better. We may also combine these two drugs, giving two grammes of the first in proportion to one of the second. These drugs are also strongly called for in the case of nocturnal disturbance, accompanied by dyspnœa and the sensation of strangulation. In the fourth period, characterised by multiplied dropsical attacks, we may use soothing measures, though the means of action are more limited. It is by the prudently combined employment of purgatives, diuretics, and sudorifics, that we can, by as it were removing the water, take away the serous matters which have a tendency to diffuse themselves throughout the tissues.

Amongst sudorifics, M. Péter emphatically proscribes vapour-baths, which do more harm than good. Dover's powder is a valuable medicine, administered in twenty to thirty centigramme doses, from twice to four times in the course of a morning once or twice a week. The system must be sedulously sustained; for this purpose a sixty-gramme dose of brandy administered in a gum draught is a good tonic; for rich patients, Port, Sherry, or Madeira, either simple or combined with quinine, may be prescribed. Infusion of coffee in medicinal doses, that is to say, half

a coffee cupfull twice or thrice a day, acts beneficially by stimulating the stomach, exciting the nervous system, and even by provoking diuresis; tea being more exciting, and not possessing any diuretic action, is valueless. When the anæmia of the first period has become serious, we must give iron; not in a strong and pharmaceutical form, which would scarcely be tolerated, but as it is supplied by nature in the form of natural mineral waters, above all those of Bussany and Orezza. The latter has the advantage of being subacid and of stimulating the stomach by the carbonic-acid gas contained in it.

Compression should not be employed in the treatment of cedema, as it may bring on both local and general accidents. Trousseau advised the production of artificial eczema by means of frictions with croton oil, but accidents going to the extent of gangrene have induced M. Péter to renounce this plan absolutely, though it has sometimes proved very successful. The only practice adapted for combating œdema is puncture. We must avoid scarifications if possible, as they may bring on gangrene, and even many punctures, which by taking away too much serous matter at one time often occasions unpleasant consequences. Five or six punctures on both feet about every two days are sufficient to relieve the patient, without endangering his safety. As to the medicines which were formerly used against the hypertrophy of the heart, we must abstain from them entirely, the heart having more need to be sustained than weakened.

Hydrotherapeutic treatment constitutes a somewhat heroic method of treating heart-diseases, from which benefit may be derived against the accidents of the third period (visceral congestions) and indeed even in dropsical complications. M. Péter rejects the use of the douche as giving too great a shock, but generally advises the use of cold water, in the first instance applied by the sponge being simply soaked, so as not to allow the water to run down the anterior portion of the body, nor on the posterior portion, which is more impressible by the action of cold water, particularly the back. At the end of a few days, these cold applications are made all over the body, beginning always at the anterior and upper part of the trunk, finally some days further on, when the skin is sufficiently accustomed to it, the water is used with a full sponge, so as to run down the body; the first two or three spongefulls still being pressed out on the anterior part of the body. To further stimulate the skin, a tenth part of alcohol may be added to the water.

Electricity has sometimes yielded good results, but it is as a means which requires further investigation.

M. Péter concludes by some remarks relative to the hygiene for persons attacked by cardiac affections, which may be summed up in the following sentences. Avoid everything which can stimulate the heart to excess, either physically or mentally; follow a good dietetic regimen, tonic and reparative, without being exciting; avoid anæmia; keep up the strength of the heart and of the great vessels. Children should be ordered to take moderate exercise and use cold water to the skin; later on, the choice of a profession should be made, which would neither entail too sedentary, nor too active and exciting a life.

To the young man, M. Péter recommends marriage; but to young women, on the contrary, mar-

riage is dangerous, and pregnancy a peril to be dreaded.

The excesses of the table are always troublesome, particularly in the case of aortic lesions. The food should not be of too exciting a nature; but when the patient has reached the congestive stage, or even more, the dropsical, a kind of dry diet becomes necessary, so as not to augment by the immoderate ingestion of liquids the mass of blood to be moved, and to comfort the heart and vessels. Therefore, no soups or broths should be given, but rather very underdone or even raw meat, seasoned with pickles. If there be anorexia, eggs in all forms, fish, Bourdeaux mixed with a little ferruginous water, and a small quantity of coffee without milk, at the end of the meal, should form the diet. It is necessary that the invalid should have free action of the bowels every day; he must avoid alcoholic excesses, and it is also necessary to prohibit smoking, especially in the form of cigarettes. The patient ought even to avoid frequenting places where there is too much smoke. Coffee taken in large quantities, as well as tea, must also be prohibited. Venereal excesses are to be avoided. The sudden change of temperature occasioned by taking too warm baths, frequenting ball-rooms and theatres, is particularly to be dreaded by sufferers from cardiac disorders.

It is better to live in a valley where the atmosphere is not humid, and which is sheltered from high winds, than on a mountain, in consequence of the greater pressure, and the more considerable density of the air.

Thus all the agencies that can be set at work to palliate the accidents of cardiac affections are passed in review. To the question, Is the malady absolutely incurable? we must answer, as a general rule, Yes, but not in children, in whom a cure may be hoped for if the lesion be of recent origin, and the medical treatment sufficiently active. In support of this assurance, M. Péter quotes the history of a child three years old who had acute rheumatismal endocarditis, with consecutive mitral insufficiency, and who nevertheless recovered. The valvular lesion had been discovered after several weeks, indeed, several months, not only by M. Péter, but by M. Trousseau and M. H. Roger.

The treatment consisted in revulsive and extended applications of tincture of iodine on the chest during the space of several months; and after a long interval MM. Trousseau and Roger were able to affirm that the pathological sounds had entirely vanished.

MEDICINE.

LECTURE ON SPECIFIC OR ZYMOTIC DISEASES. BY DR. WILKS.*

Before taking each of these separately, I shall first speak of them as a whole, and you will then perceive what features they have in common. The most approved theory is that each owes its origin to a specific or peculiar virus, which, being introduced into the system, propagates therein, and reproduces itself to an almost infinite extent. This process is attended by certain characteristic phenomena, and as a rule, the subject of it cannot undergo the process a second time. These facts suggested to Liebig the idea of a fermentation in the blood, whereby a cer-

* *Guy's Hospital Gazette*, January 3, 1874.

tain material (like sugar or starch) might undergo a fermentative change, and that when the process was ended with the destruction of the agent it could never occur again. Upon this hypothesis he framed the word 'zymotic' (*zumoo*, I ferment), a term still retained, although the idea attached to it is not generally held, but used synonymously with the expression 'epidemic.' An explanation by others of a non-recurrence of a specific disease is found, not in the idea of fermentation, but of growth, whereby the virus introduced into the blood grows at the expense of a certain material within it. These two theories, however, may be identical if the growth of the yeast plant and fermentation are considered together.

We use the term 'specific' to designate these diseases, because we believe each one stands isolated from the others, in the same way as a plant or animal is distinguished from all others, as having a different parentage. Just as in the organic world every example of tree or beast produces its like and no other; so amongst these diseases—small-pox produces small-pox, scarlatina produces scarlatina, and none other. Then there is the absolute proof that if the virus of one of these diseases be inoculated into a healthy person a similar affection is produced in the latter. We have, therefore, every reason to conclude that whenever we meet with an example of a specific disease that the germ of the disease has been implanted in the subject of it, just as when we see a weed in our garden we believe the seed must have been sown. There are, also, many other arguments in favour of the belief of the specificity of these diseases, and more especially those drawn from their history in different countries. As, for example, although the climate is the same as it has ever been, yet it was only three years ago that scarlatina appeared in India and parts of Australasia after the arrival of a ship with cases of the disease on board. Small-pox was unknown in America until the conquest of Mexico, when, on being introduced, millions fell victims to its virulence, and the same with syphilis in the Pacific Islands. The importance of these questions arises from the fact that it is only in the minority of instances of specific diseases that we can trace contagion, and yet I must advise you to consider that in every case the disease has been 'caught.' In the present state of our knowledge you have a right to assume that, even though you are unable to prove it, and let the *onus probandi* lie on those who maintain the spontaneous generation of these diseases, as it is for them to prove their position.

You can understand why the specific cause of these diseases is spoken of as a poison, since in the animal and vegetable world a poison means that which produces certain definite and distinctive injurious consequences; so peculiar that when meeting with these symptoms in any individual case, we immediately recognise the causes which are in operation. If, for example, a small quantity of arsenic be administered to a human being he is immediately seized with vomiting, purging, collapse and very definite symptoms; if, instead, he swallowed the cholera or contagium poison very similar phenomena would ensue.

It is, therefore, held that each disease has its cause or active principle, which is called the 'contagium,' and the time may come when a future lecturer may place before his class several bottles labelled 'vaccine,' 'varioline,' 'typhine,' 'cholérine,' &c. That this contagium is not merely a homogeneous fluid, but contains distinct germs, is proved by diluting it, when it is found that after many ex-

perimental trials at inoculation a certain number of these only are successful, showing that these germs are accidentally caught. It is generally believed that these germs are produced in the animal organism, and are therefore living particles or 'zoospores'—that they can only be propagated in the subject of the disease, and therefore it is possible that all these zymotic disorders might be stamped out by isolating patients, just as the cattle-plague is stamped out by killing the animals.

There are those, however, who, holding to the specific nature of the 'contagium,' believe rather that it is of a vegetable kind, and therefore can have an altogether independent existence outside of the animal body. They would contend that the poison of cholera was a rice fungus, that of measles the same as a well-known mould, that typhoid fever poison was produced by vegetable decomposition, and so on. I might also say that those who believe in the spontaneous origin of these diseases are in the minority, but they would hold that typhus fever is produced by overcrowding, relapsing fever by impoverishment, typhoid by vegetable decomposition, cholera by an exaggeration of the circumstances present in our autumn months, scarlatina by decomposition of blood, and even small-pox (according to Miss Nightingale) by bad sanitary conditions. Syphilis would be said also to arise *de novo* from promiscuous intercourse.

I give you these opinions, not with the object of forcing any one of them dogmatically upon you, but that you may know what the theories are, and that you may reason logically and clearly upon them; that you may not raise a cry against the dirty river in your town whenever scarlatina, typhoid or cholera appear, unless you can explain in what way you hold it to be guilty of their production. At present the prevalent opinion would be that the river merely acted as a conveyer of distinct and separate poisons at different times. The proof apparently lies in such an example as is given by the Medical Officer of the Privy Council. A notoriously dirty and ill-drained village, where the wells are frequently contaminated from the offensive ditches, is free for many years from typhoid fever until a case of this disease is brought into the place, when immediately it spreads widely amongst the inhabitants. The means of conveyance is at hand when the poison arrives.

Now let us see what happens when a specific virus is introduced into the system. It immediately infects the blood and commences to produce some change in the way of altering its constitution, whilst it itself is being infinitely propagated. This is the hatching time or period of 'incubation.' As a rule the subject of it is not conscious of the change, and therefore is not ill. When a virus is inoculated we see a local inflammation going on, as after inoculation of small-pox, where the pustule is forming eight days before the constitution is seen to suffer; or after inoculation of syphilis, where an induration goes on at the spot, and after forty days the constitutional symptoms appear. It is most probable that if the virus of other diseases were inserted directly into the system, that the incubating time would be definite, but the mode of and introduction differs in so many ways that this period varies considerably in each particular case. It may be due to the mode in which the virus is introduced, the latter being less able to penetrate the system in one direction than another. Thus small-pox virus inoculated affects the system a few days before it would do so if taken in by the lungs as

vapour; so the secretion of measles acts more rapidly than the vaporous emanations of the skin. I must therefore take the extremest and narrowest limits, and give you the average. The importance of this question is brought before you when you are asked for example, by a mother at what time she is safe from infection after having left nursing her sick child.

When the incubation is complete, the whole body becomes affected by being thrown into a violent febrile state, in which every organ of the body suffers. At the same time the surface of the body, both the skin without and the mucous membrane within, shows marked signs of irritation, and since on those surfaces the poisonous secretions often appear it is thought that the latter are eliminated by these sources. The alterations on these surfaces are peculiar, and more than other symptoms assist us in identifying the disease; such as the peculiar rashes of the exanthemata, and the affections of the ileum in enteric fever. All the solid organs likewise are affected by the poisoned blood, as indicated by their deranged functions seen in the delirium, sickness, diarrhœa, yellow skin, or albuminous urine. The organs are filled with blood, which is often undergoing a solution, and this hæmorrhage occurs within them as well as on the surfaces of the body. We meet, therefore, with what are called malignant forms of the specific diseases in which this hæmorrhagic tendency is often the principal symptom.

I would ask you, therefore, to think of these specific diseases as a whole, by which you may remark in what particulars they resemble one another, and you will not be led into error when a new epidemic arises, either amongst men or the lower animals. You will not assert, because in the rinderpest an eruption is met with, the disease is small-pox; or because ulceration occurs in the intestine that it is typhoid fever; nor will you necessarily think that an epidemic amongst pigs is scarlet fever because the skin is red.

I will conclude with a word about treatment. As far as it is at present known there is no cure for specific diseases; they run their course and cannot be cut short. At least, at the present time there is no evidence in proof of it, although we are constantly trying every new remedy which is suggested for the purpose, such as belladonna for scarlatina, sulphurous acid for typhoid, or sarracenia for small-pox. Whether, after inoculation on the surface of the body, the constitutional disease could be modified by destroying the focus of contagion at that spot is questionable. I am not aware that any experiments were made in rubbing out the small-pox pustule during its development in the time of inoculation, but it was the opinion of Hunter and some modern surgeons as regards syphilis, that the early treatment of an indurated chancre would modify the secondary symptoms. All we do at present in these specific diseases is to assist Nature, and relieve any especially untoward symptoms. We place the patient in as good air as possible, so as to dilute and carry off the poisonous effluvia, and give him cooling drinks. At the same time we may give medicines to relieve a bronchitis or check a diarrhœa, and quite recently it is believed that we may do more than this, for we have begun to regard the increased temperature in the febrile state, not as a necessary part of the process which must be gone through, but as a condition which is positively injurious, and therefore may be checked with advantage. The plan, there-

fore, of placing our patients with typhoid fever in cold baths is undergoing a trial.

| Disease. | Incubation. | Prenatal fever. | Duration of Rash. | Mode of Contagion. |
|------------|---------------------------------------|--------------------|----------------------|--|
| Typhus . | Average 9 days, few days more or less | 4 | 10 | Exhalation from body and lungs, from clothes. |
| Typhoid . | 12-14 days or less | 10 | 14 | Secretion from intestine, inhaled or swallowed. |
| Relapsing | Probably 4-5 days | 17 | | Exhalation from body and lungs. |
| Small-pox | 12 days, when inoculated 8 days | 2 | 8 | Exhalation from body and lungs, from clothes, purulent secretion and scabs. |
| Scarlatina | 3-6 days or less | 1 | 3 | Exhalation from body and lungs, from clothes, blood, epithelial scales swallowed or inhaled. |
| Measles . | 10-15 days, when inoculated 7 days | 3 | 4 | Exhalation from body and lungs, from clothes, blood, secretion from nose. |
| Syphilis . | 30 days | Few days. | Several weeks. | Blood and the various secretions. |

HAYEM ON INJECTIONS INTO THE VEINS IN CHOLERA.—In a discussion upon this subject at the Société Médicale des Hôpitaux (*L'Union Médicale*, 1873, p. 966), M. Hayem stated that the algid stage of cholera might be termed the stage of dehydration, from the rapid loss of liquid, which is the most important pathological change occurring in it. The intestinal lesions are not specific, but are simply catarrhal in character, and their importance consists in their extent and the rapidity of their occurrence, but not in their intensity. They presented the same characters in the recent epidemic as in that of

1865, except that in the latter lesions of Peyer's patches were more marked in children than in adults. Several months ago Messrs. Kelsch and Renaut described a profound alteration of the tubular glands of the intestine in cholera, the whole of the glands, except their bases, being destroyed, and the altered mucous membrane being covered with granulations. M. Hayem has observed on the contrary that the tubular glands are easily recognised, despite a more or less marked alteration in their epithelium. The term granulation also is inexact; for, though the mucous tissue is infiltrated with new elements, there is no new tissue formed. The vessels which are observed are not new, but very old ones, somewhat congested. If granulations were really present, a cicatrix would form during healing; but this is not the case, for the superficial epithelium, which never desquamates completely, is regenerated, and the exudation-products and lymphoid corpuscles are absorbed, just as in catarrhal inflammation. During the period of reaction, danger does not arise from the persistence of intestinal lesions, but from the changes which the blood has undergone in consequence of its stasis; and this period might therefore be termed that of secondary toxæmia, just as the first was called that of dehydration. The stasis having passed off and circulation again begun, the organs become supplied with blood having an abnormal composition, and in consequence the functions of the kidneys, brain, and circulating apparatus, become disturbed, and cutaneous eruptions make their appearance. It is uncertain what the changes are which the blood has undergone during the period of stasis; but M. Hayem recalls the observation of Schiff, that a ferment which transforms the glycogen of the liver into sugar, and thus induces glycosuria, becomes developed during stasis. Besides this, there occur in the blood certain morphological changes consisting in the presence of small red globules in it; which were formerly observed by Hayem and Henocque, and afterwards by Kelsch and Renaut. The latter authors think that they are red corpuscles which have become desiccated and contracted. M. Hayem, however, considers them to be broken red corpuscles. During stasis, the red as well as the white corpuscles pass through the vascular walls, and some of them, sticking half-way through, are broken by the force of the current when the circulation recommences. He is able to obtain these broken corpuscles by producing stasis in the limb of a guinea-pig by means of a ligature. Stasis is, according to him, very important, as it is the cause of changes in the blood. The object of the physician ought, therefore, to be either to prevent it or to limit its duration and extent. Injections into the veins are usually employed too late; they ought to be tried at the commencement of stasis, and before the toxæmia which results from it has been produced.

T. LAUDER BRUNTON, M.D.

VALLIN ON ENTERIC FEVER WITHOUT ANY ELEVATION OF TEMPERATURE.—The utility of the clinical thermometer in the diagnosis between different fevers has probably been exaggerated. For example, few physicians who have had extensive experience of enteric fever would subscribe to the dogmatic assertion of Wunderlich, that no fever can be enteric fever, on the fourth day of which the evening temperature does not reach 39.5°C . or 103.5°Fahr . It is, however, a point on which most observers are agreed, that the thermometer is of the greatest pos-

sible use in settling the question whether the febrile state exists or not. It is now admitted that there may be fever without any increase in the frequency of the pulse, but that there can be no fever without elevation of temperature; and conversely that, when the temperature is elevated, there is fever. From this point of view, there are no circumstances in which the thermometer is oftener resorted to with advantage than in the diagnosis of mild cases of enteric fever, and particularly of those cases which German writers have designated *typhus ambulatorius*, from the fact of the patient's continuing to go about throughout the whole or greater part of the disease. But Dr. Vallin, in an article on the ambulatory or apyretic form of typhoid fever (*Archives Générales de Médecine*, November, 1873), tells us that enteric fever, even in its gravest form, may run its course without any elevation of temperature; and it is clear that, if this statement be accepted as correct, the physician is deprived of a most material aid to diagnosis, under circumstances where a correct diagnosis is of the utmost importance. It is precisely in these cases that a knowledge of the temperature-range has been thought to be of the greatest value. Before, therefore, accepting Dr. Vallin's facts, it is necessary to submit them to careful criticism.

Dr. Vallin refers, in the first place to the cases of *latent* enteric fever, recorded by Louis, Griesinger, Trousseau, and other observers; but from all these cases he considers that his differed in the circumstance, that for fifteen days the temperature at no time exceeded 37.6°C . or 99.7°Fahr . The cases which he records in support of this remarkable statement are two.

One was that of a man, aged thirty-six, who first came under observation on December 13th, 1872, and whose temperature was first taken on the following day. When he was first admitted into the hospital, he was extremely emaciated and weak, as if he had already passed through a protracted illness, and while in the hospital he had diarrhoea, colicky pains in the abdomen, and albuminous urine. On December 22 he died, and, until within a few hours of death, when symptoms of peritonitis set in, and the temperature rose to 39.4°C . or 102.9°Fahr . the morning and evening temperatures never exceeded 37.6°C . or 99.7°Fahr . After death, the intestinal lesions of enteric fever were found in conjunction with recent peritonitis. [In reference to this case, it is necessary to observe that, although the patient had not been entirely confined to bed prior to admission into hospital, he had been taken ill on November 15th with malaise, lassitude, and loss of appetite, and that from December 1st he had been obliged to give up his work, his appetite had entirely failed, and his prostration had daily increased. He had therefore been ill for twenty-nine days, and had passed through the primary fever, before his temperature was ever taken; and when admitted into hospital he was merely suffering from the prostration consequent on the febrile attack, and from symptoms due to the intestinal lesion, which, as often happens, persists and may advance to perforation, long after the primary fever has ceased. The case is far from being an uncommon one, and cannot legitimately be adduced as an instance of enteric fever running its course without any rise of temperature.—*Rep.*]

The other case was that of a man, aged twenty-four, whose temperature from the seventh day of the attack (on which it was first taken) was taken night and morning, and for twelve days never exceeded 37.4°C .

or 99.3° Fahr. The symptoms were evidently of a mild nature until the eighteenth day, when the patient suddenly passed into a state of alarming collapse, due to intestinal hæmorrhage, from the effects of which he narrowly escaped. On the occurrence of the hæmorrhage, the temperature fell to 36.4° C., or 97.5° Fahr., but next day it rose to 39.6° C., or 103.3° Fahr., and for many days it remained higher, the evening temperature on the thirty-second day being still 39° C., or 102.2° Fahr., the pyrexia being probably maintained by sloughing of the integuments on the sacrum.

In this case, the circumstance of the temperature between the seventh and eighteenth days of the disease having never been found to exceed the normal standard, is probably accounted for by insufficient observation. The temperature was only taken twice during the twenty-four hours; and, although the author is of opinion that it could not have risen materially in the intervals without the patient being sensible of the change, our experience is entirely different. The case was evidently one of those cases of enteric fever which have been familiar to all students of the disease since the date of the first edition of Louis's great work, and which run a very latent course until copious hæmorrhage or acute peritonitis suddenly supervenes, and converts what apparently has been a trivial malady into one of the most formidable with which we have to cope. In these cases the febrile paroxysms may occur during the day, and be so brief that they may fail to be discovered, unless repeated observations of the temperature be made. The fever, which in most cases is remittent, is here intermittent. Cases answering to this description have been not uncommon in our practice, and have been recorded by Griesinger, and other authorities.

[For these reasons, we are unable to accept Dr. Vallin's cases as proving that enteric fever can run its course without any rise of temperature, or as in any way tending to depreciate the value of the thermometer in the diagnosis of disease.—*Rep.*]

C. MURCHISON, M.D.

OBSTETRICS AND GYNÆCOLOGY.

DUNCAN ON THE HÆMORRHAGE DURING PREGNANCY IN CASES OF PLACENTA PRÆVIA.—Dr. Matthews Duncan maintains that the ordinary theories on this subject are incorrect. They are—1. That hæmorrhage occurs from the gradual expansion of the cervix as pregnancy advances, because it is now generally admitted that the cervix is not really taken up to form a portion of the uterine cavity; 2. That it occurs from separation, because the lower part of the uterus was specially developed in the latter months, while the placenta ceased to grow in proportion; 3. The converse theory, more recently advocated by Barnes, is that the disproportionate growth was on the part of the placenta. After giving his reasons for not agreeing with any of these views, Dr. Duncan proposes his own theory, which is that these hæmorrhages are not truly unavoidable but accidental, and that their occurrence is favoured by the extraordinary anatomical conditions occurring in placenta prævia, as well as by other circumstances, such as the increased pressure of blood above what exists in ordinary situations of the after-birth. He considers, therefore, the whole pa-

thology of placenta prævia to be nearly, if not quite, identical with that of accidental hæmorrhage. He states, also, that there are four ways in which hæmorrhage during pregnancy may occur:—

1. By rupture of an utero-placental vessel at or above the internal os uteri. This is analogous to the source of hæmorrhage in some cases of uterine fibroid or polypus.
2. By rupture of a marginal utero-placental sinus within the area of spontaneous premature detachment, where the placenta is inserted, not centrally or covering the internal os, but with a margin at or near the os.
3. By partial separation of the placenta from a jerk or fall.
4. By partial separation of the placenta, in consequence of uterine pains producing a small amount of dilatation of the internal os. Such cases may be otherwise described as instances of miscarriages commencing but arrested at a very early stage.

W. S. PLAYFAIR, M.D.

LEOPOLD ON THE LYMPHATICS OF THE NORMAL NON-PREGNANT UTERUS.—Dr. G. Leopold has arrived at the following conclusions with regard to the lymphatics of the normal non-pregnant uterus (*Archiv für Gynæcol.* vol. vi.).

1. *Mucous Membrane.*—1. The mucous membrane consists of a framework of the finest connective tissue, the bundles of which are covered with endothelium, and whose interspaces form the lymph-spaces (*Lymphräume*). 2. In the deeper layers, the membrane of the glands consists of a fine layer of delicate connective tissue bundles, whose epithelium lies externally, but more superficially it is formed only of a sheath composed of the cell-plates (*Zellplatten, plättchenförmigen Zellen*). 3. The blood-vessels, from the finest capillaries onwards, have a number of fine endothelial sheaths increasing with their size. 4. The framework of connective tissue stands by means of fine twigs in direct connection with both sorts of sheaths. 5. The glands and blood-vessels, therefore, pass directly through the lymph-spaces, separated only from the latter by their sheaths, formed from the framework of connective tissue. 6. At the limits of the muscular layer, the lymph-spaces reach a short distance into the filter-shaped hollows between the muscular bundles, and become gradually narrowed into the intermuscular lymph-vessels and spaces.

II. *Muscular Coat.*—1. The muscular layer contains in animals and in the human subject lymph-vessels and lymph-spaces (*Lymphspalten*). The walls of each are formed of the fine intermuscular connective tissue. The former are lined by fine endothelial lamellæ, which exhibit here and there openings and slits; the latter are lined by delicate cell-plates (*Zellplatten*). 2. In animals, the characteristic net of lymphatics is arranged parallel to the long axis of the two layers of fibres; they, therefore, cross each other. Those of the inner layer pass into the lymph-spaces of the mucous membrane, and those of the outer into the subserous lymph-vessels. The large lymph-collecting tubes, provided with valves, and spread in the form of a net over the horns of the uterus, lie between the muscular layers, and receive the whole lymph-vessels from both sides: externally those of the subserous and outer muscular layers, and internally those of the inner layers and the mucous membrane. 3. In the uterus of the human subject the lymph-vessels are much more

complicated, on account of the arrangement of the muscular fibres. They are most richly developed in the outer layer, and in the other layers specially in the neighbourhood of the large vessels, and are connected with the subserous membrane as in animals, but with the mucous more by lymph-spaces. They come together in the outer layer, especially at the side of the uterus. 4. The lymph-spaces, in the human subject and in animals, surround the smaller bundle of a large muscular bundle, and pass into the lymphatics. In animals, they stand in indirect connection with the subserous and mucous channels; in the human subject, however, in direct connection. 5. For the most part, large blood-vessels lie in the neighbourhood of the large collecting tubes; the other lymph-vessels are partly accompanied by blood-vessels for a certain distance, and the lymph-spaces are almost regularly penetrated by small vessels.

III. *Serous Coat*.—1. Under the serous membrane, only lymph-vessels are found. They lie in the subserous connective tissue, and form large characteristic nets. 2. They are much less numerous than the subserous blood-vessels lying over them, but are from eight to ten times stronger than the latter. 3. They have large ampullæ, points of union, constrictions, valves, and swellings, and send branches towards the deeper parts, either in a vertical direction or at an angle. 4. In the pig, rabbit, and sheep, the net has mostly a direction corresponding to the long axis of the uterine horns. In the human subject, on the contrary they cover the anterior and posterior wall, in irregular large or small groups, and have, especially at the insertion of the Fallopian tube, large ampullæ, and then pass as an extended net upon the tube.

WILLIAM STIRLING, D.Sc., M.B.

MISCELLANY.

WHAT IT COSTS TO SUPPORT HOSPITALS IN NEW YORK CITY.—According to the official estimates for 1873 we have the following: *Department of Charities and Corrections*.—Out-door Poor Department, \$128,066; Bureau of Out-door Sick Poor, \$5,300; Bellevue Hospital, estimated number of patients, 700, \$103,370, or \$147.67 each patient; Charity Hospital, estimated number of patients 950, \$133,302, or \$140.31 each patient; Hospital for Contagious Diseases, 180 patients, \$20,667; Fever Hospital, 60 patients, \$6,179; Small-Pox Hospital, 75 estimated inmates, \$24,950; Hospital for Incurables, \$13,393; Asylum for the Blind, 150 inmates, \$8,055; Convalescent Hospital, 250 inmates, \$22,041; Lunatic Asylum, 1,300 patients, \$119,919, or \$92.25 per patient; New York City Asylum for Insane, 650 patients, \$83,026, or \$127.72 per patient; Hospital for Epileptic and Paralytic Patients, 120 patients, \$13,172; Hospital for Infants, 450 children, \$51,780, or \$115.06 per child; Randall's Island Nurseries, 650 inmates, \$61,282, or \$93.58 per inmate; Nursery Hospital and Idiot House, Randall's Island, 450 inmates, \$47,887; Inebriate Asylum, \$23,611; Reception Hospital Centre Street, \$10,180; Reception Hospital, 115th Street, \$5,920; Ambulance Establishment, \$3,995; General Drug Department, salaries, \$2,500. Total, \$888,595, as the estimate for the above hospitals, &c., Department of Charities and Corrections.

EATING TOO MUCH.—It has been lately pointed out that while many people doubtless do eat too much, that some are over-anxious lest they should err in that direction. The following passage, from the translation of a recent paper by Dr. Max von Pettenkofer, supports this view.

'It is only a short time ago that it was customary in physiology to speak of a superfluous or luxurious consumption. According to certain physiologists, as long as the body is able to perform its functions, even though suffering from hunger, to take more food was luxury. But Bischoff and Voit fully demonstrated by their experiments on nutrition that the result of a nourishment so restricted is a state of want—a continual famine incompatible, in the long run, with the normal conditions of life. The body has need of a certain well-being—of a small excess of nourishment in order to preserve its strength and vigour. What just prevents death from hunger is not sufficient. It is as if we were to restrain the organism from producing any more heat than suffices to prevent death from cold, under pretext that all beyond this limit was superfluity and luxury.'

A RACE OF DWARFS.—The Geographical Society of Italy has received from Alexandria, with the news of the death of the explorer Miani, and various ethnological objects, two living individuals whom he had forwarded of the tribes of the Akka or Tikku-Tikki, and whom the learned traveller had bought of the King Munza. These individuals—of whom one is eighteen years old, and forty inches in height, and the other sixteen and thirty-one inches high—are stated by Miani to belong to the race of dwarfs described by Herodotus, and recently rediscovered by the German explorer Schweinfurth, who described them carefully. They are pot-bellied, very thin-limbed, and knock-kneed, spherical and prognathous crania, very long limbs, copper skins, and crisp, tow-like hair.

A HOSPITAL FOR HYPOCHONDRIACS.—The late Seth Adams, of Massachusetts, who left an estate of \$1,701,000, has provided in his will for the establishment, within fifteen miles of Boston, of an asylum for the treatment of hypochondriacs. Mr. Adams had himself suffered from hypochondria for many years.

EPSOM SALTS.—The human race will shortly be purged at a much cheaper rate than heretofore. We learn from *L'Union Médicale* that an enormous deposit of Epsom salts has been discovered at Alcanadre (Spain), in a district traversed by the Tudela railway.

PROFESSOR DONDERS shows that the time occupied in the transmission of a sensation through the eye to the brain, the formation of a judgment, and the transmission of a volition from brain to hand is .15 of a second; but when the ear is the receiving organ the time required is only .09 of a second.

NOTICE.

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The London Medical Record.

WEDNESDAY, JANUARY 21, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

LANGENBECK AND OTHERS ON BLOODLESS OPERATIONS.

In the *Berliner Klinische Wochenschrift* of December 29, 1873, is published a communication by Baron von Langenbeck to the Berlin Medical Society, on Esmarch's method of 'bloodless operation.' He remarks that by this method the loss of blood in operations on the extremities may be reduced to a minimum, or, to speak more correctly, the operation may be throughout performed bloodlessly (*unblutig*). Attempts to control the loss of blood by compression of the limb are not new. For many years Langenbeck has been accustomed to bandage the extremity from the toes upwards with a wet bandage firmly applied, and then to put on a tourniquet above, before amputating the thigh, in cases of weak patients where loss of blood was to be feared. Other surgeons might have done the same thing; he did not claim priority. A great advantage of Esmarch's method, besides the saving of blood, is that the field of operation is never obscured, and the anatomical and pathological relations of the tissues may be inspected with the greatest facility. In delicate operations, as for instance, the resection of the wrist, any needless injury of the tissues may be certainly avoided, without constantly mopping up the blood, or injuring the wound with sponges. On the removal of the constriction the skin becomes red, as if stricken with erysipelas; capillary bleeding occurs, supposing the larger vessels to be tied, somewhat more copiously than usual, but no disadvantage appears to follow. Professor Langenbeck suggests certain precautions which should be borne in mind in the use of this means. In the first place, it is doubtful if the constriction should be employed where the parts are filled with pus, because possibly the infiltrated matter might be pressed into the circulation; the same remark applies in cases of amputation performed for soft tumours, or those affected by gangrene; and in the upper extremity the constriction of the India-rubber tube may perhaps give rise to paralysis of the median or ulnar nerves, by compressing them against the bone. In two cases Langenbeck has observed branches of the median nerve affected in this way. In one case the paralytic symptoms disappeared in fourteen days; and in the other, in which complete motor paralysis of the median nerve had taken place, after the lapse of three weeks, when the patient was leaving the hospital, the effects still remained. To avoid such mischances, Langenbeck no longer uses the elastic tube in operations on the upper extremity, but, in place of it, he applies, after the peripheral bandaging has been

accomplished, a second elastic bandage round the upper third of the arm. With this modification he has performed resection of the wrist-joint and several other operations just as bloodlessly as if the tube were employed, and without any subsequent interference with the nervous functions.

Dr. Brandis of Aix-la-Chapelle has published some observations on this subject. He attaches the greatest importance to Esmarch's invention. The idea of emptying a part of the body of blood before operating is perhaps not new. Desmarres' eyelid-forceps is an example; but he considers that the merit of keeping large portions of the body empty of blood, even two extremities at the same time, without injury to the general circulation, and during the entire continuance of a perhaps tedious operation, belongs to Esmarch alone.

In the first case, one of removal of sequestrum from the tibia, in which Dr. Brandis tried the method, he was surprised at the rapid healing of the wound. The next case which he relates was a resection of the wrist-joint, performed in the usual way; the patient did not do well, and it became a question of amputation of the forearm. Just at this time he became acquainted with Esmarch's method, and believing it would afford facilities in the examination of the diseased joint, he performed a second operation for the removal of diseased bone. It is unnecessary to give the steps of the operation, but the result proved highly satisfactory. The operation was performed easily, and all the tendons were preserved uninjured. Only trifling local or general reaction followed the operation, and this is ascribed in great part to the absence of any loss of blood. The patient was a feeble exsanguine man.

He then compares the two operations as performed on the same joint. The first was unsatisfactory, very bloody, and followed by severe fever, lasting five days, and by moderate fever for three weeks, and also by several abscesses. The second operation lasted an hour and a quarter, produced a very large wound, was accomplished without loss of blood, and resulted in the preservation of an useful hand; the traumatic fever was slight, lasting barely three days, and the patient scarcely suffered anything. Another not less satisfactory case of resection of the elbow-joint is detailed. But Esmarch's discovery, Dr. Brandis continues, does not merely apply to the great operations of surgery. Who has not been, for instance, in the painful position of hopelessly seeking for a piece of needle broken off in the palm of the hand or foot? Perhaps at first it was possible to feel the point of the foreign body from without, quite easily; the surgeon cut down upon it, and suddenly everything was changed, the needle had disappeared, and the wound was full of blood. Then followed sponging and examination with the finger, sound, or forceps, but all in vain. Once and again the forceps seem to have caught hold of something hard; but, on pulling it steadily one became convinced that it was palmar or plantar fascia, or something lying deeper, but not the needle. Too often the search is in vain, and the result, a deep, painful, protracted suppuration. Dr. Brandis has recently had occasion to satisfy himself how very differently and how more easily such an exploration may be now made.

Dr. Leisrink of Hamburg, in a critical notice of Professor Esmarch's paper in Volkmann's *Sammlung*, says that from the day when Ambrose Paré ligatured arteries, and no longer cauterised amputation-stumps, science received a new impetus. The

first joint-resection proved the beginning of an entirely new development of operative surgery, and the first bloodless operation will also have disclosed an entirely new point of view, with regard to operations on the extremities, and serve for the heading of a new chapter in the history of surgery.

The first time he saw the method used, was in a case of the ligature of the anterior tibial artery; and in the deep wound that was necessarily made, not a drop of blood obscured the steps of the operation.

The following are the advantages which Leisrink attributes to the use of Esmarch's apparatus.

1. The patient will in future preserve the blood formerly lost during operation, and in the amputated limb.

2. On this account, healing of the wound will be quicker.

3. In all probability, there will be fewer chances for the inception of traumatic diseases.

4. The operator will be often spared the need of an assistant, and may complete his operation much more quickly.

Perhaps there may be other advantages or disadvantages which longer experience will discover; meanwhile, he is convinced that the time will soon come when Esmarch's apparatus will be found amongst the instruments, not merely of every hospital, but of every practising surgeon, just as often as a tracheotomy-tube, or a hernia-knife.

WILLIAM MAC CORMAC.

EXNER ON THE TIME OF REACTION OF THE SENSORIUM.

When some phenomenon of the external world affects one of the senses, a determinate short time elapses before the impression is perceived by the observer, and responded to by him with a signal. This time is different for different individuals; the difference is denoted scientifically by the expression 'personal equation.' Donders some time since made experiments on the subject; and it has recently been investigated anew by M. Exner (*Archiv für die gesammte Physiologie*, vol. vii. p. 601).

M. Exner names the time elapsing between the impression of a stimulus on the organ of sense and the conscious reaction, the 'reaction-time.' He sought to determine the length of it for various individuals, for various organs, and under various circumstances. The consciousness of the stimulation was generally indicated by the right hand pressing a key. The motion of this, as also the stimulation, produced marks on a rotating blackened cylinder; and from the known rate of rotation, and the space between the two marks, the interval of time could be estimated.

Experiments were first made on seven persons, of different character and age (one of them a frail old man of seventy-six); the time being noted which they took to make a signal with the right hand, when the left was stimulated by an induction-shock. The tabulated results show great differences in the reaction-time (minimum '1295 second, maximum '3576 second.) Nor did they seem to depend on age. 'So far as my experience goes (which is, indeed, limited), it seems to me that the shortest reaction-time may in general be looked for in those individuals who are most accustomed to concentrate their attention on an object, and that those who let their ideas run loosely have a greater reaction-time, whether they are young or old.' It is clear that the differences lie quite beyond the limits of error.

'It is striking to any one who makes these experiments for the first time, how little he is master of his movements, when the point is, to produce them as quickly as possible. Not merely the violence of contraction (*Zuckung*) lies greatly beyond the domain of choice, but also the time at which the contraction is produced is to a certain degree independent of us. We make a contraction, and can afterwards tell, with surprising accuracy, whether we have done it sooner or later than at another time; but we really have not the power of reacting at a desired moment.' An approximate explanation of this may be found in the following observation.

'One feels in the sensorium, while he is with tense attention expecting the stimulus, an indescribable something, which tends to produce (*besorgt*) the quickest possible reaction. If the sensorium be in this state, the reaction is, if I may so express it, involuntary; that is, there is not required an additional impulse of will, after stimulation occurs, in order to the reaction; and, on the other hand, it requires a measurable time to restore this condition; and if the stimulation take place before this has been done, there still occurs here also a contraction without will (so to speak). That, therefore, which causes that the reaction should occur after stimulus, consists in a central change which has already appeared before the stimulus is applied. It is this change which is voluntarily produced.'

For the success of these experiments on reaction-time, a high degree of attention is necessary. If this become sluggish, large and discordant figures are obtained. That the attention, therefore, might not be needlessly wearied, the time was vaguely indicated at which the individual would receive a stimulus. Exceptionally short reaction-times are obtained when the stimulus is strong, and the person is startled.

The reaction-time measured by different methods gives corresponding results for different individuals; that is, if one mode of measurement give with one individual a smaller number than another mode, that mode will give with another individual a smaller number than the other mode. The tables further show that the shortest reaction-time is got by the mode of measurement, in which the stimulus used is a light-flash produced by sending an induction-shock through the eye. The stimulus giving the next shortest reaction-time is an electric shock to a finger of the left hand; then follow, in order, the hearing of sudden sound, electric shock to the forehead, shock to a finger of the right hand, sight of an electric spark, finally a shock to the toes of the left foot. [Donders measured the time for three of these cases, and found the same order.]

Of the circumstances which affect the reaction-time, the most important is the intensity of the stimulus; weak stimuli give badly agreeing, and, in general, larger numbers than strong stimuli. Then there is the attention already referred to. The reaction-time, further, diminishes with increasing practice. Fatigue, however, has an opposite influence. In the course of a long-continued series of experiments, the last results show generally larger numbers than the first. After drinking two bottles of Rhine wine, the reaction-time rose from '1904 second to '2969 second. The taking of tea or of a small dose of morphia had no effect.

M. Exner next proceeds to the analysis of the reaction-time, and resolves it into the following seven 'moments;' 1. The time which elapses while the sense-apparatus translates the active *vis viva* into a

nerve-stimulus; 2. The time in which the stimulus passes along the nerve to the central nerve-system; 3. The time in which the stimulus traverses the spinal cord; 4. The time of central exchange for a motor stimulus; 5. The time of return along the spinal cord; 6. The time of conduction in the motor nerves; 7. The time of setting free (*Auslösung*) the muscular motion. Nos. 1, 3, 4, and 5 are specially considered; the others have been fully studied by Helmholtz and others.

Of special interest is the first question: How long does the organ of sense require for transformation of external force into nerve stimulus? For the answer of it, only the experiments with sight were available. The reaction-time, when the nerve is stimulated by light (as in seeing an electric spark), is compared with that obtained from direct stimulation of the optic nerves by an electric shock; and the difference may be considered as indicating the time which the retina requires to translate the impression of light into a nerve stimulus. The experiments showed that the reaction-time on seeing an electric spark, is about '1506 second; while, with direct stimulus, it is '1139 second. They further showed that the reaction-time in the former mode, if the intensity of the spark be increased, may descend to '1229 second: but in direct stimulation of the retina, the minimum was yet considerably smaller, only '1007 second. We can, therefore, only accept as certainly probable the existence of a latent stimulation; 'that is, that after the image of the electric spark is formed on the retina, a moment occurs, in which the nerve-tissue is preparing the forces applied to it, but has not so far prepared them that they can produce an excitement of the nerve. In what form are these forces present in the retina, when they are no longer light, and are not yet nerve-excitation? This is not an uninteresting problem, the solution of which, however, we must unfortunately give up.'

As to the conduction of sensory and of motor-excitation through the spinal cord, the experiments showed that the sensory velocity of conduction was about 8 mètres per second, while the motor conduction was 11 or 12 mètres. These values are to be taken as merely approximate; but it clearly appeared that the conduction in the spinal cord is considerably slower than in a peripheric nerve.

The central exchange of the sensory stimulus for the motor, or the 'reduced' reaction-time, embraces those phenomena of the entire circuit which occur in the brain, and they are calculated from the reaction-time, by deduction of the time taken for conduction beyond the brain. All the circumstances above specified as influencing the reaction-time have influence also on the 'reduced' reaction-time; viz., attention, strength of stimulus, and practice.

As to the influence of practice, which, in the case of the old man, brought down the reaction-time from '0426 to '1340 second in the course of a few months, the striking fact is observed, 'that the diminution of the reaction-time is not continuous, perceptible from experiment to experiment, but that it takes place in springs, and that these springs occur in pauses between the series of experiments. Thus the old man learned to react more quickly in the course of days on which he made no experiments. This behaviour is much too obvious to be attributed to accident. It has, moreover, appeared to me that our daily life affords experiences according to which something similar occurs in bodily exercises.'

Different results from those above described (the author points out) are obtained, where one is required, not to answer a sudden stimulus, but to give the moment at which a phenomenon, previously followed, passes into a particular stage, e.g., when a star crosses the wire of a telescope. It is not, properly, the reaction-time that is here determined, but the capability of the brain to measure the time of entrance of a phenomenon. While in this case the possibility presents itself of the coincidence of reaction with impression of the sense, it is also possible, on the other hand, that the reaction may occur earlier. In fact, the many experiments hitherto made on this—measurements of the 'personal equation' by astronomers—give both positive and negative divergences, which are much more considerable than those found in measurement of reaction-time. The old methods of determining the personal equation are not so well adapted for the purpose as that here described.

ALEX. B. MACDOWALL

FORSTER ON THE SIGNIFICANCE OF THE ASH-CONSTITUENTS IN FOOD.

J. Forster (*Zeitschrift für Biologie*, vol. ix.) has selected pigeons and dogs for his experiments on this subject. These animals were fed with food containing as few salts as possible, 'with albumen, in the form of the residue of flesh after the preparation of the "extract of meat." This residue, as is known, is not quite free from salts, but these were extracted from it, as far as possible, by repeated boiling and washing in distilled water. By this process a powder, containing in the dried state 14.445 per cent. of nitrogen was obtained; 100 grammes of this dried substance contained—

| | | |
|---------------------------|---------|---------|
| Phosphoric acid anhydride | . 0.548 | gramme. |
| Chalk (calcium oxide) | . 0.078 | " |
| Iron | . 0.023 | " |
| Potassium | . 0.151 | " |
| | 0.800 | " |

Magnesia and chlorine were found in too small quantities to be weighed. Casein from ordinary milk, boiled in distilled water, was also employed. The starch used was treated several times with a 0.08 per cent. solution of hydrochloric acid, and washed in a filter with distilled water until the filtrate yielded no precipitate on the addition of nitrous acid. A mixture of one part of casein and seven parts of starch, as used in the experiments on the pigeons, contained 0.279 grammes of phosphoric acid in 100 grammes of the dried mixture. Fat, in the form of the best butter, formed part of the food, and in addition distilled water was freely given.

A prepared mixture of the above was given to pigeons and dogs, and when it was rejected they were fed artificially. The author concludes from his experiments that the addition of certain salts is necessary for the retention of the balance of materials (*Stoffgleichgewicht*) in the animal economy. When this supply sinks below a certain limit or is completely withdrawn, the body excretes salts, and the animal dies.

The following table shows the quantity of nitrogen taken in in the food, and that excreted, in a dog. The duration of the experiment is divided into three periods of eight days each.

This table clearly shows that the removal of salts from the food has no effect on the transformation or albumen, but that this chiefly depends upon the quantity and kind of supply of the combustible alimentary materials.

| TAKEN IN | | | | NITROGEN EXCRETED | | | NITROGEN DIFFERENCE. |
|------------|-------|--------|----------|-------------------|-------|-------|----------------------|
| Flesh | Fat | Starch | Nitrogen | Urine | Fæces | Total | |
| I. 1,433 | 1,200 | 300 | 207.0 | 197.5 | 7.5 | 205.2 | +1.8 |
| II. 1,311 | 650 | — | 189.3 | 188.2 | 15.0 | 203.2 | -13.9 |
| III. 1,249 | 689 | 663 | 180.4 | 182.1 | 16.0 | 198.1 | -17.7 |

Apart from the contents in salts, the solid as well as the fluid products excreted, during deprivation from salts, are the same as in normal nutrition. At the beginning of the experiments, the digestive juices secreted had the normal constitution, but they gradually changed. A time then arrived when they became inactive, or no longer had the normal composition.

In all animals fed with food from which the salts had as far as possible been extracted, a condition of weakness of the muscles and tremblings occurred, best characterised as general exhaustion. The weakness of the posterior limbs of the dogs assumed in the second week of the experiments a paralytic character. The activity of the brain was disturbed, as shown by the stupid appearance of the animals, etc. Phenomena of increased sensibility showed themselves later. By the greatest possible removal of the mineral constituents from the food of adult animals, the process of the changes of materials and decomposition in the body proceed in the same way, till the death of the animal, as by a diet which, in addition to the above necessary constituents, also contains the ash constituents. Latterly, however, disturbances in the functions of the organs occur, which hinder on the one side the transformation of the nutritive material into modifications capable of being absorbed, and thereby prevent the reparation of the decomposed material of the body, and on the other, by suppression of processes necessary to life, bring about the destruction of the organism, before the impossibility of a continued reception of food is followed by decline and death.

With regard to the salts excreted, when these are removed from the food, the table shows that the excretion of phosphoric acid is never interrupted. In animals deprived of salts, the excretion of this substance by the urine is largely diminished. The less the quantity of food poor in salts introduced, the greater is the loss in phosphoric acid which the body suffers. The smallest quantity excreted corresponded to the time when the greatest quantity of combustible material was introduced.

Although the food was quite free from chlorine, and the urine in the latter period of the experiment contained only a trace of this substance, still the vomitings on the thirty-fourth day showed that a large quantity of chlorine was mixed in the stomach with the food introduced. 246 grammes of food vomited contained 1.63 grammes of chlorine, while the urine excreted on the same day contained only 0.04 grammes. Chlorine was continually excreted in the stomach and absorbed again, for the fæces contained no chlorine.

The author thinks that all these conditions are to be explained by the condition of the salts in the body. He divides these into two classes. By far the greatest

part is in combination with the combustible substances, chiefly with the albuminous bodies in fixed or loose combinations. A small fraction, previously in combination, but freed by decomposition and oxidation, is present in the blood, with the products of the metamorphosis of the tissues. The latter are excreted on the blood passing through the kidneys. Food free from salts, introduced into blood from the digestive canal, unites in the blood with the free salts arising from the chemical decompositions. The quantity of salts excreted must increase with the quantity of free salts in the blood. The salts excreted are increased during hunger, and this because the salts in combination with the body-substance are set free to enter the blood. An increased excretion was also observed when a surplus of salts was added to the food, as was the case at the end of one experiment.

The author is of opinion that the supply of nutritive salts, or of those salts in the food which can prevent a loss of salts from the body, is less than till now has been supposed.

WILLIAM STIRLING, D.Sc., M.B.

MEDICINE.

LECORCHÉ ON THE SECONDARY PART PLAYED BY GLYCOSURIA IN DIABETES MELLITUS.

It is now some time since Trousseau's clear insight foresaw that, in diabetes mellitus, the glycæmia which brings on glycosuria is not really the disease. As M. Claude Bernard has since demonstrated in his lectures, the glycosuric phenomenon must only be regarded as an effort of the organism to regenerate itself, and as the expression of a salutary physiological tendency. The true etiological element, says M. Bernard, is the cause, at present unknown, which brings on the primitive weakening of the organ. This cause reacts on the liver, produces glycæmia, and brings on a powerful reaction in all the reparative organs. But this action ends by exhausting itself; the glycæmia itself finally diminishes when the too persistent diabetes has exhausted the organic effort which tended to regeneration. The practical deductions from these conclusions, arrived at by a learned and able observer, are immediately perceived.

Dr. Lecorché has turned his attention to this subject, and made a critical examination of the various methods which erroneous theories have extolled as remedies against glycosuria, and which can only give very incomplete and merely temporary cures. In the most successful cases of patients apparently cured because they ceased to be glycosuric, they none the less died diabetic; that is to say, azoturic.

Forming the therapeutic means generally recommended into three groups corresponding to the so-called rational theories of diabetes mellitus, M. Lecorché shows the inadequacy of these remedies; and, from this point of view, first makes an estimate of M. Bouchardat's well-known practice, which consists in preventing the introduction of the glyco-genous element into the animal economy by the suppression of starchy foods, sugar, and saccharine fruits, alcohol, and, in fact, everything which would appear to favour the development of sugar. M. Lecorché, however, says that this suppression is not

merely useless ; for, even if it possess the slight advantage of not overloading the system with original matters which are not consumed, it sometimes—nay, very often—proves very injurious to the patient.

When strict note is taken, it is not uncommon to find the stomach become intolerant of an exclusively nitrogenous regimen, whence arises dyspepsia ; the absorption of the ingested substances is only partially accomplished, and the anæmic condition, which is common after digestive disturbances, makes its appearance. This anæmic condition is the more serious in this case, because it favours the malassimilating process which constitutes the foundation of diabetes. Besides this, the local conditions may be against the application of the regimen, to which patients deprived of starchy matters are submitted. Some patients at a certain stage of their disease cannot tolerate any of the gluten breads generally ordered—viz., those patients whose powers of mastication are impaired by dental caries or by the attacks of stomatitis, which are frequent in the course of this disorder. The feculents ought not to be suppressed, for their suppression has only one advantage, that of not overloading the circulatory system with useless matters destined to be partially rejected in the shape of grape-sugar. This advantage, however is on the whole but of very slight importance ; and if the disagreeable consequences which may result from the suppression of this kind of food be taken into consideration, it will easily be understood that they should certainly not be entirely prohibited. M. Lecorché is even persuaded that diabetic patients can only prolong their life by continuing the use of them. He has seen and can follow up many patients who, by depriving themselves of starchy foods, rapidly fell into a state of prostration, which only left them when they freed themselves from the use of a too highly nitrogenous kind of nutriment.

M. Lecorché is equally far from prohibiting the use of tea, coffee, alcohol, and fatty substances. Tea, coffee, and alcohol are of great utility in the treatment of this disease, though, through a too superficial examination, they have been condemned by some physicians, especially by those who in the treatment of diabetes have only kept glycosuria in view. The employment of these substances may, it is true, raise the amount of sugar present in the urine in the twenty-four hours, according to Rosenstein, but this circumstance is only of slight importance.

The first thing to be striven for is to diminish the quantity of urea ; and from this point of view alcohol, tea, and coffee, are aliments, even medicines, of the first order. Alcohol may be given in all forms ; but, as we must avoid at any price the local disorders which it may produce, such as dyspepsia and gastric catarrh, it will be well to vary the preparations of it from time to time. For this reason the use of wine is recommended in preference to liqueurs, which contain alcohol only in a concentrated form, and sometimes excite the stomach too much. It is a remarkable fact that diabetic patients can tolerate a considerable amount of alcohol without showing any signs of intoxication. This immunity, doubtless, is connected with the continual washing out of the organs, which prevent this substance from forming a lodgment in them, and producing the lesions to which it generally gives rise.

Fat is also useful in diabetic cases ; and Dr. Rollo long since advised its employment

in the form of bacon. It may also be prescribed in the guise of cod-liver oil and butter. Without possessing the same value in diabetes as the nitrogenous elements, fat has the advantage, when first depositing itself in the tissues, of being able subsequently to retard the too rapid transformation of fatty diabetes into lean diabetes, and by this circumstance alone of putting off the advent of the cachectic period. Besides being more easily oxydisable than the feculents, it diminishes the proteic disassimilation by fixing part of the oxygen.

It is by endeavouring to combat this proteic malassimilation that we may hope to treat diabetes with advantage and utilise the medicines, which, given at random, are but of very secondary utility to the patient. It is for this reason that the muscular exercise which forms part of M. Bouchardot's treatment must be retained. By utilising the oxygen in the combustion of the hydro-carbonaceous substances, the muscular exertion necessarily slackens the protein disassimilation. It should also be prescribed with the object of keeping up the regular action of all the organs. If the patient have not reached the cachectic stage, hydrotherapy will be equally advantageous to him. The alimentary regimen should for the same reason be tonic, and easily assimilated on the plan of Dr. Rollo's system of diet, perfected by the later discoveries of science ; that is to say, it should comprise all kinds of nitrogenous substances in forms best suited to the patient's palate. The medicinal treatment should consist in the employment of drugs, whose action is specially marked by a lessening of the quantity of urea formed. For this purpose, the use of opium, valerian, arsenic, and doubtless bromide of potassium, is to be recommended. Opium diminishes the amount of urea, and therefore is the special remedy for diabetes ; but we must guard against excess in its use. Valerian has the same action, but is less powerful ; arsenic and bromide of potassium are still on their trial. Regarding the alkalies, which have always been recommended for diabetes, the author thus expresses himself. 'We believe, in confirmation of M. Bernard's experiments, that the alkalies in small doses augment the secretion of the gastric juice, and by so facilitating digestion, re-establish the equilibrium in an already much shaken organism. This is the actual result obtained when diabetic patients are placed on a course of alkaline artificial or natural medication ; and if in our opinion they are of no use against the diabetes, which they may aggravate, we think they are very useful to the patient in certain circumstances. All writers are unanimous in recording these successful results. The patient scarcely arrives at one of the thermal stages indicated, before digestion and sleep are restored. The urine is modified only at a subsequent period. It must, however, be borne in mind that, in order to obtain these results, we must not overdo the treatment ; and on the other hand, we must not submit to it patients who have not as yet reached the last stage of their disease. By not taking these indications into consideration, we run the risk in both cases, of bringing on the anticipated appearance of that cachectic condition which is the precursor of serious and varied complications. It is likewise in these conditions we meet with those nervous, comatose, and apoplectic seizures which often put an end to the existence of the patient.'

ABSTRACT OF A CLINICAL LECTURE ON
METEORISM. BY THE LATE PROFESSOR
OPPOLZER, OF VIENNA.*

The meteorism, which usually appears in the train of many diseases, in themselves severe, such as enteric and typhus fevers, dysentery, peritonitis, puerperal affections, &c., is in by far the greater number of cases, if it attain a high degree, a dangerous and generally unfavourable symptom, which often gives the physician cause for deep reflexion as to the manner in which he is to remove, or at least subdue as far as possible, so grave a complication of the original disease.

This symptom, appearing in the sequel and course of the diseases above mentioned, which is commonly designated by the title 'meteorism,' depends, as has long been generally known, on the distension of the intestines by the accumulation of gases in them.

If, then, this collection of gases in the intestines, and the consequent distension of the latter, become very great, it will be readily understood that such a process cannot go on without an essential influence on the functions of important organs; and also that the continuance of the symptom referred to, must of necessity interfere with and check the most important functions of these organs.

It is only too clear, and requires no elaborate explanation, that the diaphragm, subjected to the pressure which the gases accumulated in the intestines exert in all directions, is pushed more or less upwards from its normal position. This pressure, to which the diaphragm is subjected, is transferred in a manner readily understood to the lungs and also to the heart. In consequence of this pressure on the lungs, these organs are compressed, especially in the lower lobes, but also in the upper. The necessary result is, that in these parts the percussion-sound is dull, and that no breath-sound, or only a weak bronchial one, is present. It is self-evident, that the breathing remains the same if the meteorism be stationary; but that, on the other hand, if it undergo decrease or increase, the phenomena of percussion and oscillation manifest corresponding changes.

If the lower lobes of the lungs have become contracted in consequence of the pressure on them and have been rendered bloodless by the compression, it occurs as a further result that the circulation in this part must be impeded in a greater or lesser degree according to the strength of the pressure, and may be even entirely arrested. In this way, it is evident that no more blood can enter the lower lobes. As a necessary further result, the upper lobes become overfilled with blood, and hyperæmia is developed in them; this produces greater or less dyspnoea, which may attain so high a degree and so dangerous a character as to lead to pulmonary oedema and death. The symptoms of asphyxia, which may be caused by meteorism, become aggravated from day to day, especially in the course of puerperal affections which are accompanied by meteorism.

The impediment to respiration and the consequent dyspnoea may in some cases reach so high a degree, that the patients die asphyxiated.

This arrest of the circulation of the blood, by which the life of the patient may be placed in such danger, naturally extends still further, especially to

the right side of the heart; the countenance assumes a blue colour, cyanosis is developed, and the patient complains more or less of a sense of pressure.

It is evident from this brief exposition, that meteorism may become very dangerous in certain cases of disease; nay, that it may often become the immediate cause of death; and that it is in general deserving of special attention as a very unfavourable symptom.

At the same time it must be especially pointed out that—as has been established by numerous observations—the degree of meteorism bears a proportion to the greater or less gravity of the disease; in the milder point of disease it is developed in a slight degree only, while in severe cases it generally reaches a high degree of development.

With regard to the causes which give rise to meteorism, we must, in order to give as clear an idea as is possible in the present state of knowledge, first of all take a close view of the prevailing ideas regarding its occurrence in individual diseases, since only by doing this we are enabled to offer an explanation of the manner in which meteorism is developed in individual diseases, and to find out what circumstances give rise to its occurrence.

If we examine this subject, we find that there are some cases of meteorism in which a clear idea as to its cause may be arrived at, while in other cases this is quite impossible.

It is very easy to gain a clear notion of the circumstances which give rise to it in acute intestinal catarrh. It is here to be especially remarked, that the development of gases in the intestinal canal is not to be treated as a symptom or a consequence of the intestinal disease present, so long as the acute intestinal catarrh is still in that stage which is attended with increased transudation and peristaltic action. The development of gases must here be explained as being dependent upon just the same causes which, as may be often observed, in most cases give rise to the catarrh; especially the passage of undigested and decomposing substances from the stomach into the intestines.

It is also a well-known fact, that the mucus, which is formed in the intestinal canal in cases of chronic catarrh, acts in the manner of a ferment on the contents of the intestines, and thus causes them to undergo an abnormal decomposition, in consequence of which large quantities of gases are set free, leading to distension of the bowels and other troublesome symptoms.

The matter is, however, far more difficult when we attempt to discover the cause of meteorism during peritonitis; and it is no easier to explain the meteorism which occurs as a sequela of this disease. Hitherto it has been assumed that the occurrence of meteorism in such cases is due to an increased formation of gases; but this assumption is quite improbable, since indeed, no cause can be discovered which should lead to a more rapid decomposition of the contents of the intestinal canal. The assumption also, that in the course of peritonitis gas is exhaled from the intestinal wall, is devoid of any valid foundation. It appears probable that in such cases the meteorism is to be attributed in a small degree to the expansion of the gases, favoured by the relaxation of the intestinal walls, but in a higher degree to the impediment to their escape arising from the paralysis of the intestinal muscles.

If we now pass on to the diseases, such as typhus, in which meteorism is a symptom of ordinarily con-

* *Allgemeine Wiener Medizin. Zeitung*, Jan. 13, 1874.

stant occurrence, we find nothing whatever that can throw light on its etiology. The most different views have been entertained and disseminated on this subject, without having had their correctness tested by rigorous observation. And we must say plainly, that complete darkness still prevails with regard to the meteorism now under consideration; and that the explanation of the causes which produce and favour its development must be considered as a problem to be solved by science in the distant future.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

DURANTE ON THE TERMINATIONS OF THE NERVES IN THE CORNEA.—Dr. Durante, in describing the results of researches on the nerves of the cornea made by him in the anatomical laboratory in Rome (*Rivista di Medicina, di Chirurg. e di Terap.*, and *Gazz. Clinica di Palermo*, August and September), states that, by soaking the cornea of batrachians, rabbits, and dogs, in solution of chloride of gold, and keeping them at a temperature of 88° Fahr., he was, at the end of four days, enabled to see a very distinct network of nerves. When a combination of nitrate of silver and chloride of gold is used, the intercellular substance is sometimes coloured; not the fibre, which appears like a vein or capillary charged with nitrate of silver.

In frogs, the nervous trunks, from six to fifteen in number, pass into the cornea at the level of the internal elastic coat, lose their medullary sheath, and subdivide into numerous fibres, which become interlaced, and form a plexus in the interior layers of the cornea. This plexus gives origin to many other fibres, which spread out in the anterior layers of the cornea, and give off branches at a right angle. These branches in their turn subdivide in the same way, forming a network of fibres through the whole thickness of the cornea. The axis-cylinders become separated from the primitive fibres, and pass in a straight line to the cylindrical epithelium, among the layers of which they follow a winding course as far as the last layer but one, where they form an irregular network, which is best seen in sections made parallel to the anterior surface of the cornea.

The arrangement of the nerves in the cornea of the rabbit differs from that in the frog, both in direction and in mode of distribution. The nerves, sixteen to twenty in number, penetrate the cornea towards the outer part, and form a plexus. The fibrils which penetrate the epithelium proceed from the fibres which pass obliquely outwards from the plexus. Beneath the epithelium the fibres are divided into tufts and fibrils, which penetrate the epithelium, some directly, others after a short passage, and form in the penultimate layer a very fine fibrillar network, with narrow meshes. Some of the fibrils form loops in the deep epithelial layers.

In the dog, the nerve-trunks entering the cornea are smaller but more numerous than in the rabbit, and are distributed nearly in the same manner. Some of the fibres pass directly to the under surface of the epithelium, where they divide into numerous primitive fibrils, which run parallel to the anterior surface of the cornea. From these, other finer fibres are given off, which, having reached the last

layer but one of the epithelium, form the network which has been already described.

Dr. Durante did not find nerve-cells or corpuscles among the fibres, nor any termination of the nerves in cells.

A. HENRY, M.D.

BUSCH ON THE ACTION OF STRYCHNIA ON SENSORY NERVES.—Busch (*Berliner Klinische Wochenschrift*, no. 37) has observed that sensibility is so much altered in frogs poisoned by strychnia that one of the animal's toes, or the central end of the divided sciatic nerve, may be crushed or burnt without causing any reflex action. Tetanic spasms occur whenever the nerve is pulled or irritated by electricity, or whenever the animal's body receives a jar.

SCHLESINGER ON VASO-MOTOR AND UTERINE NERVE-CENTRES.—In a paper read by Schlesinger on this subject before the Medical Society of Vienna, October 17, 1873 (*Allgemeine Wiener Medizinische Zeitung*, nos. 42 and 43), he states that the experiments of Ludwig, Thiry, and others have shown that the nervous motor centre, by which the blood-vessels are kept in a state of partial contraction or tone, is situated in the medulla oblongata. When the spinal cord is cut across below the medulla at the level of the axis, and the vaso-motor centre thus separated from the blood-vessels, they relax and the blood-pressure falls. A venous condition of the blood irritates the vaso-motor centre and raises the blood-pressure when the cord is intact, but it has little effect when the cord is cut. The reflex centre of the vaso-motor nerves, through which irritation of a sensory nerve causes the vessels to contract, is usually supposed to be also in the medulla. The uterus was shown by Oser and the author to possess a nervous centre, closely analogous to that of the blood-vessels. This centre, through which reflex contraction of the uterus can be induced, also is above the atlas. It is irritated, like the vaso-motor centre, by venous blood, and thus causes the uterus to contract (*Centralblatt*, no. 52, 1871). Meyer found that strychnia stimulates the vaso-motor centre, and causes contraction of the blood-vessels and rise in blood-pressure. In his experiments this contraction and rise of pressure did not occur at all, or only to a slight extent, when the spinal cord was divided near the occiput.

The author finds that strychnia irritates the motor centre of the uterus and causes it to contract. On injecting strychnia into the blood of rabbits, the uterus becomes very pale, contracts tetanically, and assumes a cylindrical shape. Its horns become bent and finally rolled up in a knot. The contraction lasts from ten to sixty seconds, and then the uterus becomes redder than before the contraction, and is flaccid, though still rolled together. In a few seconds fresh contractions occur, which sometimes affect one horn, sometimes another, and sometimes the whole uterus. In an uninjured animal to which no strychnia has been given, stoppage of the respiration or irritation of the central end of a spinal nerve causes vigorous contractions of the uterus, but these are never so continuous and repeated as those caused by the injection of strychnia.

Although the chief part of the motor centre for the uterus lies above the atlas, it does not do so altogether, but extends some way down the spinal cord. This is shown by the fact that irritation of the sciatic nerve will cause reflex contraction of the uterus after the spinal cord has been divided above the atlas. When the cord is intact, irritation of the sciatic, crural, or median nerves, or brachial plexus, will cause reflex con-

traction of the uterus. When the cord is divided at the atlas, the effect of irritation of the median nerve is completely destroyed, that of the crural nerve only partially, while that of the sciatic is sometimes destroyed on one side, and sometimes not at all. If strychnia be now injected into the animal, irritation of the median nerve will again cause contraction of the uterus. This shows that reflex uterine centres are present in the cord, and that the median nerve is connected with them, although their presence could not be perceived till it was rendered apparent by strychnia. Conclusions regarding the localisation and limitation of nerve-centres based on the non-appearance of an effect after division of the cord are untenable.

Strychnia injected into an animal whose spinal cord is intact, causes the blood-pressure to rise, at the same time that the uterus contracts. When the uterus relaxes, the blood-pressure sinks. The effects on the blood-pressure and the uterus do not always coincide to a second, but are so closely connected that they seem to be results of a common cause. Contrary to Meyer's observations, the author finds that strychnia sometimes raises the blood-pressure after division of the spinal cord, even more both relatively and absolutely than when the cord is intact. The rise in pressure is sometimes slight and is often absent altogether. The rise in pressure can only be caused by strychnia acting (*a*) directly on the vessels, or (*b*) on nerve-centres in the cord below the atlas. When the respiration is obstructed after division of the cord and injection of strychnia, the blood-pressure either rises very much or oscillates considerably. The blood-pressure can also be raised considerably by irritation of a sensory nerve. It is improbable that the rise in pressure or oscillation is due to the action of strychnia or venous blood on the vessels; for the rise is not always present, and it seems unlikely that the vessels could act in concert so as to produce the oscillations under the influence of a nerve-centre. The occurrence of contraction of the vessels after irritation of a sensory nerve also points to the presence of a vaso-motor centre. The analogy between the vaso-motor and uterine centres and the fact, demonstrated by the author, that the latter extends below the medulla, render it in the highest degree probable that the vaso-motor centre extends from the medulla into the spinal cord; that its function becomes imperceptible, and the tone of the vessels disappears when the medulla is separated from the cord; and that this function is again rendered temporarily evident by strychnia. It is not certain whether the centres situated in the cord influence the vessels in the normal condition or not; but their apparent want of action on the vessels after section of the cord is no argument against it.

T. LAUDER BRUNTON, M.D.

SCHERSCHESKY ON THE INNERVATION OF THE UTERUS.—Scherschewsky, under Cyon's direction, has arrived at the following results (*Pflüger's Archiv*, vol. viii.). 1. The uterine plexus contains the most important, if not the only motor nerves, which can produce actual movement of the uterus, on stimulation of their peripheral ends (stimulation of the central ends produces only violent vomiting). 2. Stimulation of the central ends of the first two sacral nerves produces reflex violent uterine movements, which disappear after previous section of the uterine plexus (stimulation of the peripheral ends produce only violent contraction of the urinary

bladder and rectum). Stimulation of the bronchial, crural, median, sciatic, &c., nerves, does not produce peristaltic movements of the uterus, but only a slight rigidity and paleness of the organ. 4. The consequences of stimulation of these nerves disappears when the aorta is previously tied. Stimulation of the central ends of the sacral nerves is still accompanied by peristaltic movements of the uterus, after ligation of the aorta.

CYON ON THE INFLUENCE OF THE POSTERIOR NERVE-ROOTS ON THE SENSIBILITY OF THE ANTERIOR.—Cyon (*Pflüger's Archiv*, vol. viii.), in opposition to the negative results of G. Heidenhain, cites the following experiment from Steinmann's paper, as demonstrating Brondgeest's tonus. The gastrocnemius of a frog is weighted with twenty or thirty grammes, and the muscle is allowed, while at rest, to write upon a rotating cylinder. The posterior roots are then cut carefully with sharp scissors, and the muscle is allowed to write its length further. The weighted muscle increases in length in a marked degree, either immediately or in the course of a minute.

TARACHANOFF ON THE INFLUENCE OF CHANGES OF TEMPERATURE ON THE CENTRAL ENDS OF THE CARDIAC NERVES.—Tarachanoff (*Pflüger's Archiv*, vol. viii.) finds, in opposition to Fick, who says that the central ends of the cardiac-nerves are not influenced by changes of temperature, that, in passing defibrinated blood under normal pressure through the vessels of the brain, after ligation of the carotid and vertebral arteries, and of the veins, sudden increase of temperature of about 18° Fahr. acts as a stimulant in the most powerful manner, on the central ends of the vagus, and quite in accordance with the action on the peripheral ends of this nerve.

WILLIAM STIRLING, D.Sc., M.B.

PATHOLOGY.

TROISIER ON TWO CASES OF SCLEROSIS OF THE SPINAL CORD.—M. Ém. Troisier relates two cases of spinal sclerosis (*Archives de Physiologie*, Nov.). The first patient, under the care of M. Vulpian, was of a scrofulous diathesis, and had suffered from glandular enlargements, eruptions on the skin, and various strumous complaints. There was no history of syphilis. About two months before he came under notice, he suffered from shooting pains in the lumbar region. The pain was worse at night, and interfered with his sleep. It, however, did not prevent him from carrying on his business, which was that of a worker in a copper-mill. About the same time he suffered from dysuria, constipation, and pains in the lower limbs. These pains became worse, and in about a month he found that his limbs were growing weak, and ultimately he completely lost the use of them. The urine flowed away when the bladder was full. A large sore made its appearance over the sacrum. There was no curving or weakness of either the spine itself or of the upper limbs. There was no pain on percussion of the spine. On his coming under observation, the lower limbs were found to have lost all power of voluntary movement; there was some slight reflex action of the muscles when the sole of the foot was tickled. The muscles were not atrophied, they contracted well under the influence of inductive

currents. The sensibility of the skin of the lower limbs, though impaired and altered, was not lost. The upper limbs and the face seemed free from any functional disturbance. The patient felt no desire to pass urine or for the bowels to act. He lived about one month after he came under observation.

At the necropsy, with the exception of some slight congestion of the superficial vessels, the brain was found to be healthy. The vertebræ and the dura mater all along the spinal canal were healthy, nor was there any tumour found there. The arachnoid and the pia mater did not present any signs either of congestion or inflammation. The sole lesion to be found was on the posterior surface of the spinal cord. Here there was a small patch of sclerosis, which was situated about an inch above the lumbar enlargement. This patch was composed of two small spots placed one above the other. The inferior, which was the larger, extended both to the right and to the left of the median fissure; it however did not pass beyond the limits of the posterior columns. On the left side it sent out a small prolongation, which was confined to the posterior column of the cord. The superior spot passed a little to the right of the median fissure. These two spots, although distinct, yet were very closely connected with each other, and together formed an irregularly shaped patch a little short of half an inch in length. They were greyish-red in colour, slightly depressed, and offering less resistance to pressure than the normal tissue. The nerve-roots presented no alteration at this place.

On cutting into the cord, after it had been hardened in chromic acid, the extent of the sclerosis was found to be as follows. In the upper part, it occupied a small angle of the cortex of the posterior columns at their internal part. Towards the middle of the upper spot, it presented the appearance of a very narrow crescent, one angle of which reached the left posterior lateral fissure, and the other extended itself over the most internal part of the right posterior column. Towards the lowest part of this spot, the sclerosis was only on the left side. In the interval which separated one spot from the other was found only a small round spot of sclerosis, which occupied the left posterior column, and which was separated from the surface of the cord by healthy tissue; this spot was nearer to the posterior horn than to the median fissure. Soon it increased in size, and gradually extended itself from the posterior horn to the edge of the posterior column in the form of a triangle. On cutting lower down the cord, the same disposition of parts was found, but the triangle was not so deep, and was somewhat separated from the grey matter. Lower still, the sclerosis was confined to the cortex of the posterior column. It gradually spread thence to the cortex of the right posterior column, and finally disappeared. On examining these spots with a higher power, after the sections had been rendered transparent, the following appearances were found:—1. A central part formed by vertical and transverse fibres intersecting each other, with some occasional appearance of axis-cylinders scattered here and there among the fibres; 2. A zone of transition, in which the neuroglia was much thickened and the nerve-tubes more or less atrophied, but all preserving their axis-cylinders; the vessels were considerably developed in this and in the preceding portion; 3. An outside zone, which presented the same alterations as the preceding, but to a less advanced degree; on the borders of this zone there was only a simple increase of the nuclei of the neuro-

glia. The grey matter, where the sclerosis approached it, was not altered.

The pathological appearances above described lead one to imagine that this was a case of that disease of the spinal cord known under the name of '*sclérose en plaques disséminées*'; the progress and the symptoms of the disease in this case, however, render this conclusion doubtful.

There was not any reason to think that the disease was of a syphilitic nature. The great question which arises is, how is it that a disease, the seat of which was so limited, was able to produce all the symptoms of spinal compression? Two explanations present themselves: one is that the sclerosis exerted a kind of transverse retraction on the cord, and so simulated compression; and the other is that the symptoms were produced by vascular derangements ('*troubles vasculaires*').

The next case occurred in a female patient who was under the care of M. Charcot. She was forty years of age. She had been healthy all her previous life up to the age of thirty, when she had a bad confinement, and was attacked by hallucinations and insomnia, which were both persistent for some time. These symptoms, however, after six months, somewhat improved, only appearing at the menstrual period. About this time she felt a pain in the spine, at the lower part of the dorsal region, and had feebleness and loss of sensation in the lower limbs. On awaking one morning, she found herself completely paralysed on the left side. From this she gradually recovered, and the only trace of the attack for several years was a weakness of the left leg. For fifteen months before coming under observation, she had been subject to a sharp pain like that of a burn at the level of the sacro-lumbar articulation, which pain seemed to spread all down the right lower limb. At times that limb was jerked spasmodically. From December, 1866, she had been subject to indefinite nervous attacks, which were worse after any emotional excitement. On one occasion, after speaking for some time, she was seized with faintness, and was obliged to lie down; she could move on the bed, but lost both the power of speech and of swallowing; she did not lose consciousness. This attack lasted about a quarter of an hour, when she was seized with a violent rigor, followed by heat of the surface: the attack terminated with some slight trembling of the upper limbs. She had a similar attack almost daily till February, 1867, and then again for three months in the course of the year 1868.

In March, 1868, the following was her condition. There was pain on pressure over the dorsal vertebræ. The bowels were constipated; there was no incontinence of urine. There was decided loss of power in the left lower limb, which was much more feeble than the right. The upper limbs seemed in a healthy condition, as also did the organs of sense. She had a good appetite; no cough; the heart-sounds were clear and the menstruation was regular.

On Jan. 6, 1869, there was no loss of sensation in either of the lower limbs. On the left side tickling, pricking, pinching, heat and cold were all recognised as such, but on the right they all gave rise to a sense of pain. The reflex movements of the limbs, on application of an irritant, were more marked on the left side than on the right. The patient complained of constant pain at the sacro-lumbar articulation, and of painful feelings and startings ('*impatiences*') in the right leg and arm.

On March 7, 1870, for the last three months the

patient had been better. She could walk with the aid of crutches, and go upstairs. The left limb was still slightly weaker than the right, and the left foot was a little contorted, but the sensibility of the surface remained good. The moving power of the right limb was good, but was accompanied by pain at the sacro-lumbar articulation; the sensibility was not so good on this side as on the left. The reflex movements were nearly equal on both sides. Pressure on the lower lumbar vertebrae produced pain.

The patient died of phthisis brought on by the privations undergone during the siege of Paris, on June 17, 1871. The left lower limb had become contracted during the interval between the last note of the case and the patient's death. On opening the spinal canal, the arachnoid was found thickened, particularly behind, where were developed numerous fibrous patches; the nerve-roots were very vascular. Towards the middle of the dorsal region of the cord, the left half presented a greyish tint and all the characters of sclerosis for some centimètres in height. It was very difficult in the fresh state to determine the extent of this lesion; but after hardening the cord in chromic acid, it was found that the sclerosed part was about three inches in length. The entire left side of the cord seemed atrophied when compared with the right side. In a section of the cord made between the sixth and seventh dorsal nerves, the left half was about the $\frac{1}{30}$ th part of an inch smaller than the right side. The sclerosis occupied the antero-lateral column on the left side in its entire extent, with the exception of a very small portion of the posterior part of the lateral column; the grey substance on this side was also invaded, and only the vascular columns of Clarke and a portion of the commissure situated behind the central canal could be distinguished. The posterior median fissure had deviated towards the left side and formed a curve, with the concavity towards the right. The left posterior column was atrophied, but only partially affected by the sclerosis. It had the appearance of being retracted. There was a band of sclerosis passing from the principal centre of disease, which crossed it obliquely from before backwards, joined the median fissure about the middle, and followed it to the surface of the cord.

In a section made about half an inch above the former, a similar appearance was found, but less advanced. The disease occupied nearly the entire antero-lateral column, distorting the grey substance, which, however, remained distinct. The posterior column was also slightly affected.

In a section made an inch above the last, the sclerosis was only fibrillar in the cortex of the left antero-lateral column; in the rest of the cord it was more diffuse. At about two inches above the first section the lesion presented nearly similar appearances. Further up still, it gradually faded out. Below, it disappeared at about the first lumbar pair of nerves. The disease seemed to disappear above in the posterior columns, below in the lateral. This fact would seem to indicate the course of the disease; the paralytic weakness of the left inferior limb which showed itself early in the illness, and no doubt took its origin in the original centre of the myelitis, finished in a permanent contraction of the limb, which condition, it is well known at the present time, is associated with sclerosis of the lateral columns. It is laid down as a rule that, when the lesion affects an entire lateral column of the cord, whatever may be its vertical extent, it produces a paralysis of the muscles of the

side corresponding to that attacked, and a paralysis of sensibility on the other side. The above case would seem to bear this out. The perversion of sensibility noticed in the right limb of this patient is what M. Charcot proposes to call *dysæsthésie*, and is specially noticeable in cases of myelitis caused by compression.

W. KESTEVEN, Jun.

VENUTI ON A PECULIAR RETROGRADE CHANGE IN EPITHELIOMA.—Dr. Venuti describes (*Gazzetta Clinica dello Spedale Civico di Palermo*, July, 1873) the appearances presented on examination of a specimen of epithelioma of the penis. He has not, he says, been able to find an account of similar change in the works of Rindfleisch, Cornil and Ranvier, or Thiersch.

The growth involved the entire glans, and had become reduced by destructive changes to the size of a small nut. Its surface was divided here and there by fissures of greater or less depth, in some of which the opposed surfaces had become glued together, so as to form *culs-de-sac*. The surface was in other respects smooth, not having a cauliflower appearance. The urethra opened in its centre, in the midst of a large ulceration.

The specimen having been hardened in alcohol for some days, sections were made, both vertically and parallel to the surface. The stroma was rich in embryonic cells. The epithelial cells were all dentated, with single nuclei, the latter being in nearly all cases round. There was an extreme rarity of 'concentric globes.' The most remarkable appearance was a process of involution or destruction of the epithelial cells, commencing towards the centre of the lobules, and attaining its maximum at their periphery. The cells were flattened and their nuclei enlarged; and this enlargement of the nuclei became greater, while cell-walls entirely or partly disappeared. This generally occurred in adjoining cells, so that the nuclei, coming into contact with each other, formed a granular mass, generally enclosed in hollow or spherical spaces, bounded by walls. Sometimes a space contained a single enlarged nucleus; sometimes there were larger or smaller isolated groups of granules not enclosed in walled cavities. The presence of the walled cavities containing granular detritus was, however, the main feature of the case. The walls presented irregular longitudinal striæ, and their thickness was in proportion to the size of the space enclosed. In a more advanced stage, the walls uniting the spaces disappeared, and the granular masses became fused together.

The application of solution of iodine produced no change of colour. Caustic potash dissolved both the walls of the containing cavities and the granules. Neither ether nor chloroform had any solvent effect.

A. HENRY, M.D.

GUÉNIOT ON AN ANOMALY OF THE ŒSOPHAGUS CAUSING STARVATION.—M. Guéniot communicated to the *Société de Chirurgie* (Dec. 10), the case of an infant born with what was diagnosed, and at the necropsy proved to be, an anomaly of the œsophagus, which presented an interruption of continuity. The upper end terminated in a *cul-de-sac*, at 4 centimètres below the first tracheal ring, the lower end springing from the stomach came up to the level of the bifurcation of the trachea. The child lived seven days without taking food, which is interesting from a medico-legal point of view. M. Guéniot observed that, if cases of the kind recurred, the question of nutrition by gastric fistula might be entertained.

DEBOVE ON THE PATHOLOGICAL HISTOLOGY OF 'SCLÉROSE EN PLAQUES.'—Dr. Debove (*Archives de Physiologie*) says that it has been long admitted that there are two distinct parts in the nervous centres, the one nervous and the other connective, the latter serving for the support of the former. Our knowledge of the connective tissue is still incomplete, notwithstanding the labours of Deiters, Jastrowitz, Boll, and Golgi. According to these authors, sclerosis of the nerve-centres results from an excess of neuroglia, and ought, therefore, to be composed of *cellules chevelues* (*cellules araignées* of some authors), from which are given off minute hair-like processes.

The separation of the sclerosed parts is equally difficult in a fresh condition, as after maceration in weak solutions of chromic acid. In some sections of nerve-tissue, stained and examined in Canada balsam, the form, limits, and exact situation in the alteration may be easily recognised. There can be seen in this tissue only bundles of fibrils, collected together and pressing on the nerve-tubes, and nuclei scattered about among these bundles.

Interstitial injections have afforded remarkable results to M. Ranvier, when he has applied them to the examination of the connective tissue. This method, however, has not afforded M. Debove any result, at all events as far as the normal neuroglia is concerned. The injection broke up the elements of the tissue, but did not separate them.

M. Debove attempted to apply the method to patches of sclerosis of the spinal cord in a case of cerebro-spinal *sclérose en plaques*. The specimen was obtained from the body of a patient who had been under the care of M. Charcot, at the Salpêtrière. The disconnection of the elements appears to have taken place, but the injection escaped from the surfaces of the section. A more successful attempt was made on some patches of sclerosis, discovered under the ependyma of the lateral ventricles (*plaques ventriculaires*). The proceeding employed was as follows. The syringe being full of a lukewarm solution of gelatine, the cannula was introduced under the ependyma to about the centre of the patch of sclerosis; the fluid was then injected, and a bulla was formed; this bulla was allowed to harden, and then cut into small pieces. These were coloured with picrocarminate of ammonia, some before, some after the breaking up of the cut pieces. It was then perceived that the sclerosed patch was formed of two elementary parts, viz., of fibres and cells, completely dissociated. The fibres were fine, long, independent of the cells, and not united into bundles, but of such a kind that if they really were naturally in bundles, they were so feebly united as to be easily separated by the injection. In the interval between these fibres were seen some flat cells, with elongated nuclei, having a fine transparent protoplasm, with an irregular outline; they did not present that appearance of processes which would justify one in calling them spider-cells (*cellules araignées*). They exactly reproduced the characters and the appearances of the cells of the ordinary connective tissue. The structure of the subependymic patches of sclerosis is therefore like that of the subcutaneous connective tissue. The cells are exactly the same; the principal difference appears to be in the disposition of the fibres, which are here isolated, or very slightly connected to one another, contrary to what is the case in the ordinary connective tissue. M. Debove does not affirm that in the sclerosis, scattered in multiple patches throughout the nervous arches, all the patches pre-

sent the same composition. M. Pierret, in the same case of *sclérose en plaques*, states that he obtained, by the dissociation of a patch situated deep in the cerebral hemisphere, some cells approaching by their characters those cells called the cells of Deiters, or cells with processes.

W. KESTEVEN, Jun.

RECENT PAPERS.

On Local Tuberculosis. By Prof. Köster. (*Centralblatt für die Med. Wissenschaften*, no. 58, 1873.)

A Contribution to the Knowledge of Chronic Disease of the Spinal Cord. By C. Lange. (*Hospitals-Tidende*, Dec. 31.) [Completion of a long and elaborate article on the subject.]

SURGERY.

SEWELL ON THE PASSAGE OF HAIRS FROM THE BLADDER.—Dr. Sewell, in the *Canada Medical and Surgical Journal* for October, 1873, describes the case of a female child who passed hairs with her urine and drew long hairs from the mouth. She was three years and nine months old. She had been under observation from May to August, 1873, in the Female Orphan Asylum at Quebec. The little orphan was very backward in speaking, of feeble intellect, and of dirty habits, passing everything on the floor in a standing posture. She suffered from frequent micturition, and urinated frequently with more or less pain. Each discharge of urine was found to contain a number of hairs varying from one to seven inches in length. In August they were estimated at one dozen daily. Each hair exhibited, under the microscope, a well-defined bulb, and all the characteristics of ordinary hair. Generally the hairs were fine and of a light colour, occasionally darker and coarser. There was no calcareous matter about them. The urine was of specific gravity 1018, and free from mucus, pus, or blood.

Dr. Sewell says that his case, though an uncommon one, is so far not unique. There is, however, another feature which, added to the above facts, make it really, so far as he can discover, perfectly unique. The child is constantly drawing similar hairs, from eight to ten inches in length, from her mouth. These are frequently coated with bloody mucus. He has never seen her draw any from her mouth, but some of the lady visitors have; and he implicitly relies on the report of the matron.

[The author is quite right in stating that his case is not unique in passing hairs in the urine, as there are now several cases on record, five females and three males. 1. Hildanus, in a letter to Horstius (*Horstii Opera Medica*) relates the case of a woman aged 60, who was under his care from 1616 to 1620, and appears to have been the subject of a dermoid cyst. 2. In the *Philosophical Transactions*, page 700, there is an abstract of a case of Dr. J. Wallace's. A gentleman passed long hairs during his life-time, and after death a soft concretion was found in the bladder. 3. In 1733 Mr. Powell communicated to Sir Hans Sloane the particulars of a widow lady, who passed hairy crustaceous substances in her urine, which was whitish like whey. 4. In reply Sir Hans Sloane gave an account of a brewer who suffered from the passage of long hairs matted and woven together, with little or no calculous matter attached to them. 5. Dr. W. Henry, in the 10th vol. of the

Medico-Chirurgical Transactions, 1819, has described the case of a middle-aged man who passed hairs varying in length from one-tenth of an inch to one inch. He conjectured that the hairs had been attached to the bladder or some of the urinary passages; but there was no positive evidence of this. Dr. Wollaston examined some of the hairs from Dr. Henry's case, and found that they did not differ chemically from ordinary hairs, but they differed mechanically in not possessing the roughness in one direction on the surface, upon which the felting property of every kind of common hair depends. 6. Delpech, in his *Chirurgie Clinique*, 1828, narrates the case of a young married woman, twenty-seven years of age. She passed hairs, and he removed by the urethra masses of hair, scalp, bone and teeth. He believed it to have been the result of a conception, the cyst to have been situated in the 'ad uterum' and to have opened into the bladder. It was obviously a dermoid cyst. 7. In the *Lancet* of November 10th, 1860, Mr. Hall has detailed the case of a married woman, aged 60, who suffered from the passage of hairs, and from a concretion which he extracted. Her case was probably one of dermoid cyst, though Mr. Hall conjectured that the hairs had grown from the walls of the bladder. 8. Dr. Fuller has described an interesting case in the *Transactions of the Pathological Society* for 1870. A married lady, aged fifty, suffered for several years before a cure was effected. It was determined, with reason, that a dermoid cyst had been the cause of her troubles.

[With regard to the fact of the hairs drawn out of the mouth, Dr. Sewell does not state whether he explored the mouth or made any physical examination of the chest, or whether the child was the subject of cough. A case of dermoid cyst in the lung, described by Dr. Cloëtta (Zurich) is of interest as bearing on this part of Dr. Sewell's case; and, therefore, I give an abstract of it from Schmidt's *Fahrbücher*, vol. 110. A female, aged twenty, was the subject of pulmonary tuberculosis, and expectorated large quantities of hairs. The lower lobe of the left lung was found after death to present a cyst in which hairs, fatty matter, cartilage, and bone were imbedded. This cyst opened into a large cavity on the lung, which was occupied by dead hairs, epithelium, and fat.—*Rep.*]

JOHN CROFT.

MANSON ON LYMPH-SCROTUM.—Dr. Manson (*Cus-toms Medical Reports—China*, Oct. 1872 to March, 1873) describes, under the name of 'lymph-scrotum,' a peculiar disease of the scrotum, of which three cases have been described in a previous number of the same reports. Five cases are referred to here, and another had been in hospital, but no notes were taken. The notes of these two cases are given *in extenso*, translated from the Chinese clerks' notes, and at the end the leading facts of the whole eight cases are tabulated. The patients were men practising various kinds of labour, and of ages varying from nineteen to seventy-two. Six of them were known to have been liable to ague, and in the other two cases the matter was not inquired into; the duration of the disease had in no case exceeded two years. The characteristic of the disease was the formation of vesicles in the skin of the scrotum (only two in one case, in another innumerable), from which exuded an albuminous fluid, variously described as 'clear and straw-coloured,' or 'milky,' and sometimes blood-tinged, spontaneously coagulable, and containing, under the microscope, 'two kinds of cor-

puscles, in most respects like those of the blood. The two kinds appeared to be in about equal proportions. Those similar to the red corpuscles differed from those of the blood in not exhibiting any disposition to accumulate in rouleaux, but rolled across the field one independent of the other. Thus they exhibited many different shapes according as the surface or the edge of the disc was presented to the eye.' A sketch of the two kinds of corpuscles is given.

In all the cases noted there was enlargement without suppuration of the inguinal glands. In six cases there had been abscess of the scrotum, which, however, was absent in two of the cases, though in one of these latter there had been swelled testicle. The son of one of the patients suffered from elephantiasis of the leg. As far as can be judged from the description, the skin was natural except in the part where the vesicles were formed, and in the immediate neighbourhood, where it was swollen and thick.

A singular omission in the paper is that nothing is given beyond this description of the local changes. There is no mention of the effect (if any) on the general health and condition, nothing as to the etiology, nothing as to the treatment of the disease. The conclusion must be that the disease produces no effect on the general condition, and that no efficient treatment is known; yet it would have been more satisfactory to have had this clearly stated.

[Many of our readers are aware of the case related at the Clinical Society some years since, of a boy, the son of a well-known physician in London, who suffers from occasional profuse discharge of lymph from the scrotum. In this case there is hypertrophy of one lower extremity, and at times much interference with the general health. Several other cases of varicose lymphatics have been recorded, but we were not aware that the affection prevailed anywhere endemically.—*Rep.*]

T. HOLMES.

SIMONIN ON RAPID DILATATION OF THE FEMALE URETHRA.—M. Simonin, of Nancy (*Innocuité et Utilité de l'extreme Dilatation de l'Urèthre chez la Femme*, &c., Nancy, 1873), arrives at the following conclusions. Rapid dilatation of the female urethra may be effected painlessly under anæsthesia, so that the forefinger or a forceps charged with calculi, and having a total circumference of 68 to 70 millimètres (2·7 to 2·8 inches) may be passed without difficulty. This may be done without rupture of the canal, and without producing incontinence. In one case, where incontinence existed owing to the presence of a calculus in the bladder, it ceased after removal of the foreign body.

RECENT PAPERS.

- On some Practical Questions connected with Pelvic Exudations and Inguinal Hernia. By C. Mettenheimer. (*Beitz's Memorabilien*, vol. xviii. part 10, 1873.)
- Case of Aneurism of the Femoral Artery treated by Injection of Ergotin. By Dr. Th. Plagge. (*Ibid.*)
- On Conservative Surgery. By Dr. Böttger. (*Ibid.*)
- Case in which a Foreign Body remained in a Wound for a Year. By Dr. C. Ritter. (*Ibid.*)
- Case of Retrobulbar Fibrous Myxoma: Extirpation of the Eye and Tumour: Recovery. By Dr. Valerani (*Gazzetta delle Cliniche*, January 6.)

MATERIA MEDICA AND THERAPEUTICS.

BESNIER ON THE USE OF CHLORAL HYDRATE TO ARREST INCIPIENT ABORTION.—Dr. Besnier of Paris (*L'Union Médicale*, Sept. 27, 1873), has lately used chloral hydrate in a case of threatening abortion with a perfectly satisfactory result.

The patient, a young primipara, six months with child, was taken with pains in the evening of July 11, and was seen by Dr. Besnier on the evening of the ensuing day. She had manifest contractions of the uterus, accompanied by pain, recurring every ten or twelve minutes; pulse 80; child active; no cause of premature labour could be made out. Opium was first resorted to. An enema with twenty drops of laudanum produced little or no effect; a second and third, followed by ten drops by mouth, were given with like result. Chloral was then tried. A first dose by mouth being rejected, an enema with forty-five grains of chloral was administered; almost immediately all labour-pains ceased, and the patient fell into a deep sleep, which lasted three hours; a second and a third enema, each with thirty grains, each produced two hours of quiet sleep. At every awaking the contractions reappeared, weaker each time. Laudanum was then again used, in doses of twelve or fifteen drops, every two or three hours, according to the indications; and this medication was kept up during the two following days, by which time all apparent danger had subsided. No phenomena worthy of note occurred after the sedation of the uterus thus obtained. No narcotism was apparent, nor was any disturbance caused by the chloral. The foetal heart-sounds and movements showed a perfectly satisfactory condition of the child.

Dr. Martineau, having obtained similar good results in a case of abortion (*Gazette des Hôpitaux*, March 25, 1873), attributed the sedation of the uterus to a supposed 'amyosthenic action exerted by chloral upon the uterus.' Dr. Besnier, however, adopts a different interpretation. Recalling the observations of Dr. Lambert (of the Edinburgh Lying-in Hospital), who found chloral to increase the energy of the uterine contractions, rendering them shorter in duration, less frequent, and more powerful (see *Gaz. Hôp.*, Feb. 22, 1873), Dr. Besnier is struck by the apparent contradiction in the action of chloral used in similar doses in abortion and in accouchement at term, and he tries to reconcile the contradiction. He thinks that, in normal parturition, contraction of the uterus is excited by mechanical action, exerted by the distended membranes, head or presenting part, &c., and that the contractions thus instituted are partly kept up by the reflex action of the labour-pains; while in abortion, the contractions are generally produced, not by any continuous mechanical agency, but by some accidental and passing cause, as a blow, fall or fatigue, the pains being the cause which occasions continuance of the labour. Dr. Besnier, adopting the theory that chloral owes its action to chloroform which is set free in the blood, admits that when given in labour, chloral acts as an anæsthetic, which, in normal parturition, suppresses the pains, leaving the mechanical agency to act undisturbed; the contractions being less frequent, and of shorter duration, allow the uterus to recover more fully during each

interval, whence their greater energy. But in abortion, on the other hand, the anæsthetic action of chloral suppresses the pain, and with it the only cause of the uterine contractions. Thus the happy effects of the drug are explained without the necessity of invoking any paralysing effect exerted upon the muscular fibre of the uterus.

Of course, if the foetus or placenta were engaged in the os uteri, the conditions would become similar to those of normal parturition, and chloral would only be useful as an anodyne, in relieving pain, not in preventing miscarriage.

Dr. Besnier draws attention to the utility of combining the action of chloral and of opium; and he recalls in this connection the experiments of A. Bernard, and the observations of Guibert, Joujon and Labbé, on the association of chloroform and morphia, which show that the anodyne effects of both drugs are much enhanced by their combined use.

On this communication, the reporter in the *Boston Medical and Surgical Journal* remarks, that M. Besnier's observation and reflections are interesting, as they exemplify and explain the usefulness of chloral in abortion, where we would expect the drug to produce harmful effects, from our previous experience of its action in connection with labour. Dumas, Liebreich, Personne and others have shown that chloral hydrate in presence of alkali is decomposed, chloroform and formiate of the alkaline base being produced. It is quite generally admitted, as asserted by Liebreich and assumed by Dr. Besnier, that this reaction is realised in the blood; and to the chloroform, supposed to be thus disengaged conjointly with an inert formiate, the sedative effects of chloral are attributed.

Dr. Gamgee (*Pharm. Journal and Trans.*, 2nd series, vol. xi. p. 464) has shown that this reaction, which seemed to explain so plausibly the sedative action of chloral hydrate, is only realised when the chloral is treated with *caustic alkali*, and that the salts to which the blood owes its alkalinity are incapable of decomposing chloral at the temperature of the body; the alkaline phosphate of sodium fails to accomplish the production of chloroform, even at boiling heat, while with the bicarbonate of sodium chloroform is only given off after the temperature has been raised above 70° Centigrade (158° Fahr.) Dr. Gamgee, also, clearly shows that the symptoms produced by small doses of chloral are quite out of proportion to those which might be expected to result from equivalent quantities of chloroform, supposing Liebreich's theory to be correct. The physiological effects are also known to be different, chloroform often producing insensibility before sleep and annuling reflex action, while with chloral, anæsthesia is only obtained indirectly, as the result of sopor, and reflex actions are often rendered more intense instead of being diminished or suppressed. Dr. Gamgee concludes that chemical facts as well as a consideration of the physiological action of chloral and of chloroform militate against the chloroform theory.

Dr. Gubler, of Paris, has also arrived at the same conclusions, having found that the production of chloroform from chloral is only effected by caustic alkalies, and not by the alkaline salts present in the blood.

Until further demonstration, therefore, it would, perhaps, be prudent in studying the action of chloral to carefully observe its intrinsic properties, rather

than to rest satisfied that the drug owes all its properties to gradual evolution of chloroform.

PICHLER ON THE THERAPEUTICS OF GALL-STONE COLIC.—The *Allgemeine Wiener Med. Zeitung* of November 18, 1873, contains a short article on this subject, by Dr. W. Pichler, who is one of the medical men attached to the Carlsbad baths. He remarks that gall-stones are matters of daily occurrence in Carlsbad practice—at least in large practices. On this account the local doctors have a larger experience of these concretions than any other medical men. No meeting of the Carlsbad Society for Natural Sciences and Medicine occurs without the communication of cases of cholelithiasis, some of which are of great interest. Last session, gall-stones were several times exhibited, of the size of chestnuts, which had been discharged without difficulty; not indeed by the natural passages, but in some abnormal fashion, such as results from chronic inflammation of the gall-bladder, leading to perforation of the intestine, and the escape of the gall-stone by the bowels. But these cases of large gall-stones, though very interesting, are scarcely more so than those in which great numbers of these calculi are discharged. There have been cases shown where thirty gall-stones, each of the size of a large pea, were passed at one action of the bowels; whilst in one remarkable case nearly three hundred, varying in size from that of a millet-seed to that of a pea, were thus discharged. He says he might recite a large number of cases of gall-stone colic, which are highly interesting for their long duration, their severity, their complicated course, or the implication of the nervous centres. But he reserves these details, and his views as to the mechanism of their incarceration, to another occasion, wishing rather to devote a little space to the practical question of the treatment to be adopted. The severity of the pains is well known, and women often say that they are far worse than those of childbirth. On account of this severe character, and from the fact that all sorts of reflex phenomena, vomiting, severe rigors, epileptiform and other convulsions, and the like, are frequently associated, it may easily be understood that next to the application of warmth, in the form of cataplasms and baths, narcotics must play a leading part in the treatment; opiates, morphia by the mouth or rectum, and subcutaneously injected, and chloral-hydrate being all employed by turns. Success in the employment of narcotics for this object, depends very much on the skill of the prescriber—and he very seldom complains that there are too many medicines of this class. Nor is the mode of application indifferent. The result of much experience of some of the most painful cases is, that the best results are obtained from hydrate of chloral, combined with the internal or subcutaneous use of the salts of morphia. For it often happens that moderate doses of these preparations of morphia are of no use against the severity of the pains, and we may, from special reasons, be disinclined to have resort to larger and more dangerous doses. In such cases let a dose of chloral hydrate be administered, and we shall soon be gratified with the result. Trials of each separately, and of the two in combination, have convinced him of the superiority of the combination to the use of either alone. After Dr. Pichler had found this experimentally, he learned that others had made a similar discovery. For example, Nussbaum found that a patient, who had by

mistake received a subcutaneous injection of acetate of morphia before being chloroformed, slept for twelve hours after the operation, and was during this sleep insensible to all kinds of painful impressions. Claude Bernard found that chloroform narcosis lasts much longer in animals, to whom opiates have been given beforehand. Goujon and Labbé, from repeated experiments, announce that the combination of small doses of morphia with chloroform produces several hours' complete insensibility to pain, although there may be no sleep. Another French observer, Rabuteau, has made this experiment. He gave five centigrammes (= 0.77 grain) of narcenin to a dog, and then chloroformed him. After waking from the narcosis, the dog was quite insensible to pain, although he went round the room, and recognised his master. There was complete anæsthesia; he could be pinched, pricked, or have his toes trod on without any sign of feeling, and, although full grown, sensation did not return till the next day. The combination of chloral hydrate and morphia offers similar advantages to the practical physician, and Dr. Pichler recommends it most strongly in gall-stone colic, in the passage of renal calculi, and in neuralgia.

[This paper is so condensed, and so practical, that I have omitted only a word or two here and there. Many English physicians and surgeons will corroborate the author as to the advantages of combining narcotics; but it seems hardly out of place to insist upon the necessity of great caution in the use of such combinations.—*Rep.*]

W. BATHURST WOODMAN, M.D.

REVIEW.

Syphilis, its Nature and Treatment, with a Chapter on Gonorrhœa. By C. R. DRYSDALE, M.D., &c. 2nd Edition. Large 8vo, pp. 165. London: Baillière, Tindall & Co. 1873.

Dr. Drysdale's honesty of purpose throws a charm over his writings that makes criticism an invidious task. Yet it is difficult to conceive what end the author set before himself when he began to write this work on venereal disorder. His learning is great, too great for his judgment, and he thus throws upon his reader the task of criticising and weighing the evidence collected with painstaking impartiality from many sources, without the slightest attempt to estimate the value of the contradictory observations or expressions of opinions thus strung together almost at random.

One example of our author's mode of setting forth his evidence will suffice. Dr. Drysdale's favourite pursuit is the denunciation of the use of mercury for therapeutic purposes; and he recapitulates much of the testimony against its employment that was published when the prevailing opinion that all venereal diseases were syphilitic and could only be cured by mercury, gave rise to great abuse of that drug. Among other testimony he fills several pages with Groves's account of the experience of Fricke of Hamburg, when treating the venereal patients brought under his care in the hospital at Hamburg. Our author, however, makes no mention of the fact, being probably unaware of it, that Fricke, before he adopted non-mercurial treatment, employed mercury in treating all venereal affections, gonorrhœa, phimosi, soft sores, abrasions, general syphilis, &c., and naturally enough, as we know at the present day, would find a

vast improvement in his general average of success, if mercury were no longer administered indiscriminately to such cases. Many would benefit, even if a smaller number suffered by excluding mercury from their treatment. This fact renders Fricke's testimony worthless in determining whether mercury is beneficial in treating syphilis, unless his experiments were continued over a period of time greater than that necessary for the expiry of the disease, and the cases of truly constitutional syphilis were eliminated from the other simpler venereal affections. Fricke's observations occupied three years; his results were given to the world in the fourth. What became of the really syphilitic patients whose early career was passed in total abstinence from mercury, we have never heard, as Fricke, though he continued to direct the treatment of the venereal patients of the Hamburg Hospital for several years afterwards, published no more reports of his system. All we know is that, ten years later, when Groves applied to him privately, to know if he still carried on the non-mercuric treatment of venereal diseases, Fricke replied that he was more firmly than ever convinced of the advantage of withholding mercury. This is probable enough; few men like to avow themselves mistaken after solemn profession of faith; and even the most determined mercurialist of the present day would be loth to use mercury on the condition that, if used at all, it must be applied to all venereal patients, syphilitic and non-syphilitic alike; and when Groves wrote, men still believed in the common origin of gonorrhœa, soft sores, and syphilis. Under such circumstances, we can only urge Dr. Drysdale to bear in mind that, in reasoning, expressions of mere opinion go for nothing, and that the facts from which deductions are made must have sufficient detail to establish their validity before they can be accepted as trustworthy props in the edifice which the reasoner desires to erect. In a future edition, we hope the author will subject the evidence he has collected to analysis, in order that his reader may estimate fairly the opinions quoted from many observers, and accord to them severally something approaching to their true value.

Having expressed so freely our opinion of the demerits of Dr. Drysdale's book, we hasten with pleasure to acknowledge that the work is written by one who takes great pains to keep himself informed on the subject he treats, who gives his own experience with great modesty and accuracy, and whose pages may be advantageously consulted by all wishing to learn the most recent views held by practitioners in this department of medicine.

Métallothérapie : Du Cuivre contre le Choléra ; Rapport officiel de M. le Dr. VERNONIS, sur l'Immunité cholérique des Ouvriers en Cuivre. Instruction pour le Traitement préservatif et curatif. Par le Dr. V. BURQ, Médecin-consultant à Vichy et à Nice.

The author of the above pamphlet asserts that he has made the discovery that workers in copper enjoy a special and almost a complete immunity from cholera. The conditions necessary for securing this immunity are stated to be that the dust of copper shall be inhaled daily and unmixed with other metals. A workman ceases to be protected if he be absent from his workshop sufficiently long to permit the elimination of the copper from his system. And a mixture of iron dust with the copper inhaled, prevents the formation of soluble and assimilable

copper salts in the stomach, upon which the protective influence is assumed to depend. The mixture of iron with copper, therefore, is declared to deprive the latter metal of its protective influence.

The statistical statements which are set forth in support of the proposition that workers in copper have an especial immunity from cholera, are unsatisfactory by reason of the absence of those details which are essential in all inquiries relating to the etiology of disease and the influence of protective and curative agents.

For the prevention and treatment of cholera, Dr. Burq recommends frequent and large doses of the oxide of copper or of the double chloride of copper and ammonium. Amongst other means of prevention and of cure, especially for the cramps of cholera, he advises the application of belts and bracelets made of copper coins, connected together by bands. Now, since we are told that the beneficial influence of copper is dependent on the formation of soluble salts in the stomach, and that the mixture of iron interferes with this essential process, we are at a loss to understand the *modus operandi* of copper coins applied to the surface of the body. The pamphlet under consideration being addressed to the public, and not exclusively to the profession, the author hints at, but shuns, the details of the sad spectacle presented in the obstinate and unreasonable opposition of his professional brethren, whose opposing arguments, he says, abound in errors, inexactitudes, and puerilities. In short, Dr. Burq has failed to convince his brethren, and he has equally failed to convince us, that between copper and cholera there exists any such antagonism as he claims to have discovered.

GEORGE JOHNSON, M.D.

Egypt as a Health Resort, with Medical and other Hints for Travellers in Syria. By A. DUNBAR WALKER, M.D. 12mo, pp. 139. London: J. & A. Churchill, 1873.

The Climate of Egypt and Nubia, with Medical Hints to Invalids, &c. By JAMES STIRTON, M.D. 12mo, pp. 46. Glasgow: D. Robertson, 1872.

The Romans sent cases of phthisis and of hæmoptysis to Egypt; and Pliny the Elder was uncertain whether the benefit which they derived was got from the climate of Egypt or from the sea-voyage, which was a famous remedy for such complaints in those days. If they did not proceed further than Alexandria and its doubtful climate, as would seem from Celsus often to have been the case, doubtless it was the voyage that did the most good.

Of late years, we moderns have begun to send the same class of patients to Egypt; and undoubtedly there are few better winter resorts for those who require a dry and warm climate, than Cairo and the Upper Nile, the latter of which can now be reached more conveniently in the Khedive's steamers, than by the old process of ascending the river in Nile boats. But, as Pliny mentions a consul having gone for hæmoptysis, and as his nephew sent a favourite freedman, so in our day it is only the comparatively wealthy that can undertake so expensive a journey. A residence even in Cairo is more costly than in the towns of the Riviera.

Dr. Walker has compiled his little book to assist invalids who visit Egypt, or who venture on what he justly describes as the less advisable journey for such as are delicate, a visit to the Holy Land and Syria.

The advice he gives is on the whole judicious, but consists very much of commonplaces about matters, with which travellers are now-a-days very generally familiar; and we should scarcely have expected them from one like the author, who tells us that he has visited most health-resorts in Europe, and in parts of Asia and Africa.

Dr. Walker's English is throughout slipshod, as when he spies out in Alexandria 'ladies possessed with classic features,' or, as when he tells us in his preface, that his book 'is an exposition of the diseases met with, giving precautions how they may be avoided, and those that are benefited by a residence in the country;' nor are his powers of generalisation very profound, when he observes, that 'the light-heartedness and flippancy of the French, Italians, and Arabs, is generated by the sunshine and the eternal blue acting on their character.'

The medical information is not very definite. The climate of Egypt is declared to be useful in every stage of phthisis. Plague, he tells us, is the curse of Egypt, but happily only makes its appearance at certain periods. We presume that he has seen no case of it.

We should have been glad to get some detailed account of the accommodation afforded by the villages of the Lebanon, and of the expense of a residence in them. But on this, and on their climates, almost the only subject on which he might have given some novel information, Dr. Walker is all but silent. Notwithstanding its many shortcomings, his book is not without a sort of use.

Although Dr. Stirton appears to have paid only one visit to Egypt, and that as long ago as the year 1859, still his little work contains a good deal of useful practical advice for travellers.

These works do not profess to give a full account of the climates, which they recommend.

J. MACPHERSON, M.D.

MISCELLANY.

THE EVIDENCE IN THE WEST HADDON CASE.—No little surprise is expressed by scientific medical men at the evidence of the expert at the disastrous inquest on Mrs. Gulliver, that the alleged heat of a body after death warranted the conclusion that 'a noxious volatile substance had been administered, and had caused death, of which, however, he found no traces.' The result of this statement, made to a village jury whose minds were impressed by the local gossip which had led to exhumation, was a verdict of 'death by poison.' Mrs. Waters, the victim of this verdict, courted death rather than face the fearful ordeal before her. Mr. Rodgers is, we think, bound to state on what grounds he made the reckless assertion which led to such fearful consequences. The substitution of a wild hypothesis for a state of doubt is certainly not in the province of a chemical expert on oath, in a case involving capital charges. The matter cannot, in the public interest, be allowed to rest in its present position of doubt. The sole test of temperature appears in this case to have been the recollection of an impression conveyed to the hand; and on this subject Dr. A. S. Taylor and Dr. Wilks remark truly: 'The condition of the hand itself may lead to an erroneous impression. If the two hands are of different temperatures, a recently dead body may appear cold to one, and warm to the other.'

THE SANITARIUM OF THE ASHANTEE EXPEDITION.—A correspondent in St. Vincent writes to us.—'I saw Surgeon-Major Mackinnon at Madeira, and he told me

that he was no further forward with the Sanitarium for the Ashantee expedition than when he landed, as the authorities at Madeira are so afraid of disease being imported into the island that they throw every obstacle in his way, and so far have completely prevented him from even making a commencement. From an English resident I heard that the governor and health officer, and all the inhabitants, were very strongly opposed to their island being put to such a use, and that it is certain that any vessel arriving from the coast with wounded, and having a single case of fever on board, would be put in quarantine, and not a single person would be allowed to land. So St. Helena must be the place after all. I see by Wyld's map it is only 1,275 miles from Cape Coast, and could be done in six days; besides, the run would be directly away from the coast instead of along it, as the run to Madeira is. This place, St. Vincent, is hot and barren, but has a splendid natural harbour.'

PEPSIN IN OYSTERS.—It appears, from some experiments made by Mr. E. H. Haskins (*Boston Medical and Surgical Journal*), that raw oysters contain pepsin enough to digest themselves. No wonder oysters agree with most dyspeptics.

POISONING AT MASS.—The *Indipendente* of January 5 quotes from the *Gazzetta di Bergamo* a statement that four priests and two friars were simultaneously attacked with abdominal pains and vomiting soon after celebrating mass on December 22. The vessel from which the wine used in the mass had been taken was found to contain a white sediment—apparently tartar emetic. A priest has since then been taken into custody on suspicion of attempting to poison his brethren.

ACCORDING to a French journal, horses and other animals may be protected from the persecutions of flies by painting with a pencil the insides of the ears, or other parts liable to be bitten, with a few drops of empyreumatic juniper oil (*huile de cade*).

PROFESSOR NAMIAS, of Venice, has recently died after a short illness.

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The London Medical Record.

WEDNESDAY, JANUARY 28, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

DUPUY ON FERRIER'S EXPERIMENTS ON THE BRAIN.*

Dr. Ferrier's experimental inquiry into the motor functions of the cerebral convolutions in mammalia has attracted so much attention, and awakened so keen an interest among physiological students, that, while awaiting the further prosecution of his researches, it cannot but be interesting to them to learn that a similar series of experiments have been recently undertaken in France by Dr. Eugène Dupuy, a former pupil of Dr. Brown-Séquard.

It will be remembered that the experiments of Dr. Ferrier, besides demonstrating that, under certain conditions, electrical stimulation of the convolutions may determine epileptiform and choreic convulsions, tended more particularly to establish the centralisation of certain groups of adaptive movements in particular localities. Stated broadly, the motor endowments of the paws, legs, and tail in dogs and cats were found to be centralised in the 'superior external convolution,' immediately before and behind the crucial sulcus; while the fore part of the 'middle external convolution' appeared to govern the movements of the eyelids, eyes, and parts of the face; and, lastly, the 'inferior external' and 'Sylvian convolutions' those of the mouth, tongue and jaws. As regards the posterior parts of these convolutions, the movements obtained were few and less determinate, chiefly of the ears and head; while in his later experiments Dr. Ferrier is reported to have obtained indications of centres of special sense—sight, hearing, smell—in that situation.

We translate so much of Dr. Dupuy's paper as describes his own experiments, undertaken with a view to the verification of the results obtained by Dr. Ferrier, and the general inferences which he draws from them. It will seem that they differ in some important respects from those of Dr. Ferrier, and principally in yielding much less determinate phenomena, while they also suggest that the movements obtained by Dr. Ferrier are referrible not so much to the convolutions themselves to which the electrodes are applied, as to the propagation of the electric currents to the nerves or ganglia at the base of the brain.

Without venturing to express an opinion as to how far the differences in the results obtained may be due to differences in the method of experimentation—the mode of applying the electrodes and the strength of the current,—or how far Dr. Dupuy's interpretation of them may be accepted, we think the facts presented

are such as to call for some elucidation from the experimenters.

'We have repeated,' writes Dr. Dupuy, p. 21, 'the experiments of Ferrier, as well as those of Fritsch and Hitzig, but in this instance with some variations.'

'1. In a dog, incompletely anæsthesiated, in which the brain had been exposed without subsequent hæmorrhage (by the aid of a galvano-cautery), I succeeded very well, by electrising with an induction current after the manner of Ferrier, in producing contraction of all the muscles of the shoulder and paw of the side opposite to that to which the electrodes were applied (the convolutions immediately above and in front of the fissure of Sylvius).

'2. In applying the electrodes to point 19,* I again produced movements in the whole of the anterior and opposite part of the body.

'We have never succeeded in obtaining the results indicated by Dr. Ferrier, as far as regards the projection of the tongue and the movements of the eyelids, &c.

'We ought to observe that we have always made use of ether, and that the dogs submitted to experiment have been *incompletely* anæsthesiated. On several occasions, when the animals had recovered a little, we have observed shocks of the muscular masses, but shocks "*en bloc*" which Ferrier calls choreic movements. In guinea-pigs, by applying the electrodes on two symmetrical points in the middle region of the hemispheres, we have produced a genuine attack of opisthotonos, but never an epileptic paroxysm; yet it is well known that guinea-pigs have very smart attacks of epilepsy as a consequence of different nervous lesions. Similarly, we know that dogs become sometimes choreic; yet we have never succeeded in producing, as Ferrier has described, phenomena resembling chorea in dogs. But if Ferrier now quickened, now slackened, the interruptions of his apparatus, he would have seen the muscular shocks keep pace with the interruptions even to tetanisation; it is this which he has taken for chorea and "*fits*."

'3. In a second series of experiments, we injected some atropine into a dog of strong build and not etherised; on applying the electrodes to point 15,† we produced contractions identical with those which we had previously observed, and always crossed; that is to say, contraction of the whole fore-paw of the opposite side, together with a contraction of the muscles inserted into the occipital and parietal bones, which had been previously cut at their cranial insertions and turned back.

'4. To another strongly built and vigorous dog, we administered a strong dose of haschisch without etherisation; on applying the electrodes to points 14 and 18,‡ we produced excessively strong contractions through the whole frame of the animal, which struggled furiously and barked like a watchdog.

* The numbers throughout refer to Dr. Ferrier's diagrams in his paper in the *West Riding Lunatic Asylum Reports*, vol. iii. 1873. No. 19 in the dog is situated in the inferior external convolution anterior to the Sylvian fissure, and the excitation of that point by Dr. Ferrier occasioned a drawing up of the opposite side of the face and closure of the jaws.

† No. 15 is at the frontal extremity of the superior external convolution, and is included by Ferrier among the centres of motion for the eyelids and eyes.

‡ Nos. 14 and 18 are in the anterior part of the inferior external convolution, and included by Ferrier among the mouth-centres.

* *Examen de quelques Points de la Physiologie du Cerveau.* Par le Dr. EUGÈNE DUPUY. Paris: Ad. Delahaye. 1873.

'We etherised the animal, and then observed that electrification of the same parts still gave very closely analogous results, but very feeble; no crying.

'5. In another strongly built and very healthy dog we applied the electrodes on point 24* after complete etherisation, and we then obtained no muscular contractions.

'6. In the same dog, after being allowed to recover, we injected three decigrammes of strychnine (*sic*), and then, by exciting points 23 and 25,† we produced veritable convulsions no longer limited to a single half of the body.

'7. In another dog, after incomplete etherisation, we applied the electrodes successively on points 1, 6, 5,‡ and we observed movements always crossed and limited to the fore-limb, but extending to the whole side of the body when the current was strong.

'8. We completely anaesthetised this dog, and applied to point 17§, and to the points marked by crosses,|| the nerve of a galvanoscopic frog insulated on a plate of glass; every time that the points 23, 25, 24, &c., in the anterior part of the hemispheres were touched with the electrodes, the foot of the frog underwent violent contractions, and we observed some movements in the anterior and opposite limb.

'9. In a very strong dog we removed by aid of a fine curved scalpel the opto-striated bodies of one side, penetrating by the great cerebral fissure, the corpus callosum being divided. The animal being feebly anaesthetised, we applied the electrodes to points 4, 18, 6, &c., and produced, when the current was strong, not only contractions in the anterior and opposite limb but also in the posterior limb.

'10. In a healthy dog which had served for one of the previous experiments and fairly recovered, after complete etherisation, we exposed the sciatic nerve of one side, and one of the gastrocnemii muscles, on glass plates, leaving the latter in connection with the rest of the animal by a nervous band. Each time that the electrodes (strong current) were applied to points 24, 23, 1, &c., on the hemisphere of the opposite side to that of the exposed muscle, no contraction occurred in it, but the direct excitation of the sciatic nerve made the muscle contract.

'11. In a dog which had already served for one experiment, we removed the cerebral masses as far as the level of the pons Varolii, and we applied the electrodes to the surface of the section; we then obtained contractions always of a limited kind, and in the right or the left fore limb; it was not possible to tell if the effect was crossed, because of the removal of the hemispheres.

'12. In one of the animals submitted to experiment, on electrifying the dura mater at the level of the wound, we observed the anterior, and sometimes opposite, paw contract.

'We made use in all the experiments of the electric apparatus of Du Bois-Reymond, and we have repeated them a great many times.

'We could have wished to trace the alterations of

sensibility following localised electrification, but it has not appeared to us to be practicable; we have merely ascertained that, in the greater number of the dogs experimented on, the electrification of points situated approximately at the posterior part of the cerebral hemispheres gives rise to very evident muscular contractions, and we have frequently provoked cries from the animals when they have been feebly anaesthetised. It is worth noting here that, in one of the animals, we removed the whole of the upper surface of one cerebral hemisphere; the animal lived four days, after which period it was killed. It had no appreciable paralysis, it did not drag the limb, and on the first day, when it had completely recovered of the anaesthesia, it started off walking in the courtyard of the laboratory, it ate, and barked when irritated; the day following the operation it remained always in a crouching attitude, and did not walk about unless we excited it. Traumatic fever had set in.

'Ferrier, as we have said above, is led by his experiments to adopt the doctrine that each group of cerebral convolutions is a centre of innervation for the motor or sensitive nerves of a certain territory; he is so far in perfect accord with Meynert, when the latter considers the cortical layer as a 'Plane of Geometrical projection,'* but he parts company with him when Meynert maintains that this cortical layer has not the faculty of originating sensations, nor of spontaneously transmitting the orders of the will to the muscles. Ferrier furthermore states in his conclusions that his experiments confirm in all points the hypothesis of Dr. Hughlings Jackson, who believes that the muscular spasms or paralytic symptoms which are observed in epileptic and paralysed persons may be referred to lesions of some part of the surface of the brain. We could cite here a number of most important necropsies of epileptics, where lesions have been found everywhere except in the cortical layer; so also of the cornu Ammonis, where Meynert places the seat of epilepsy; but experiment again serves to destroy this hypothesis, for it is well known that our distinguished master, Brown-Séquard, has shown that attacks of epilepsy may be produced in guinea-pigs after the whole of the encephalic mass has been removed. These experiments being very familiar, and repeated a great many times by ourselves, it seems useless to recapitulate them here.

'We shall not analyse the experiments of Ferrier, because we have already given them entire in an earlier part of this paper. By comparing them, we shall see that very often he has obtained very nearly the same results on irritating different parts of the cortical layer.

'It seems to us, however, exorbitant to deduce from his experiments the conclusions which we have transcribed from his paper, for our experiments have

* 'Since, now, this organisation effects the contact of the sensory shell of the cortex of the cerebrum with the various forms of sensory impressions derived from the external world, the image of which is coincidentally projected upon the cortex, the name of *projection system* is very appropriate to this great segment of the nervous system, and in this comparison the cortex of the cerebrum is to be regarded as the surface on which the projection is received, while the external world stands for the projected object.

'As the movements of the body constitute the source of certain kinds of sensation (muscular sensations), so do they also form a part of the external world projected upon the brain.'—Th. Meynert's *Survey of the Brain*, translated by H. Power.

* A point on the suprasylvian gyrus just anterior to the fissure of Sylvius.

† Frontal extremities of the superior external and suprasylvian convolutions respectively.

‡ Frontal division of the superior and middle external convolutions (paw and eye centres).

§ Posterior part of the middle external convolution.

|| Posterior extremities of the same convolution.

been made under the conviction that we should obtain the same results as he did, whereas we believe we are only authorised to arrive at the following conclusions.

'I. It is possible, by irritating certain limited points of the cortical layer of the brain, to produce contractions sometimes of an entire limb.

'II. Generally it is the fore limb, and of the opposite side to that of the point of irritation, which is the seat of contraction.

'III. The electrical current must be propagated to the base of the brain in order to excite it; either to the nerves which arose there, or the base itself or bulb.

'IV. If the dura mater be excited by electricity, we also obtain contractions in one of the fore limbs, generally in a crossed manner.

'V. The fact that a galvanoscopic frog has been thrown into a state of contraction when its nerve touched a part of the cerebral mass far from the point of excitation, confirms the idea that the electric current is propagated.

'VI. Contrary to the results obtained by Ferrier, we have never succeeded in obtaining the effects upon the tongue, whether of projection or of retraction.

'VII. The whole of the cortical layer of the brain is probably a centre of reflexion of a certain kind of sensibility, capable of acting in a reflex manner on motor or sensitive centres, but its integrity is not indispensable to the manifestation of voluntary and even intelligent actions.

'VIII. In the case of the animals on which I experimented, it was possible to excite contractions of the muscles of an entire limb on the opposite side of the body, even after the removal of the opto-striated bodies of the opposite side.'

EDWARD LIVEING, M.D.

LUSSANA AND OTHERS ON THE PORTAL CIRCULATION AND THE BILIARY SECRETION.

F. Lussana* quotes several experiments of Schiff's, which show that part of the bile which is poured into the intestine is again absorbed from it, and is carried by the portal vein to the liver, whence it is again excreted into the intestine. When ox-bile is injected into the duodenum of a dog with a biliary fistula, the quantity of bile secreted by the liver is increased. The increased secretion is not due to the bile which was injected into the intestine stimulating the liver to form more bile, but simply to the injected bile being excreted by the liver. This is shown by injecting ox-bile into the duodenum of a guinea-pig. The guinea-pig's bile does not usually give Pettenkofer's reaction, but it does so after the ox-bile has been introduced into the duodenum. Part of the bile is expelled with the fæces, after being reduced to its solid constituents, glycin, taurin, and dyslysin. Another part remaining unchanged in the liquid condition is absorbed. There is thus a constant circulation of bile going on between the intestine and the liver without any of it passing into the general circulation, or, in other words, without the animal becoming jaundiced. The whole of the principles contained in the bile secreted in any given

time are ultimately to be found in the excrements; but the quantity of biliary constituents contained in the fæces voided in any fraction of that time may not correspond in the least to the quantity of bile secreted during that fraction.

The author next shows that iron and mineral poisons may circulate in the portal system in the same way as bile, without entering the general circulation. According to Quevenne, the liver is the organ by which iron is principally excreted; and Bouchardat found iron constantly in the bile of animals to which iron had been given. Bouchardat, Quevenne, and Gelis have also observed that no iron appears in the urine, even after prolonged administration; but several experiments which were made in Lussana's laboratory by Paganuzzi have shown that citrate of iron appears in the urine when it is injected directly into the blood.

Lussana therefore concludes that, when iron passes through the kidneys before it passes through the liver (as after injection into the veins) it is eliminated in the urine as well as in the bile. When it passes through the liver before it reaches the kidneys (as it does when swallowed) it is eliminated entirely by the bile. The fact that it is absent from the urine, or only appears in it exceptionally and in the minutest traces, even after its prolonged administration, is no proof that iron has not been absorbed or is present in the portal circulation; it only shows that it has not passed through the liver and reached the general circulation. However, when iron is present in the blood in a notable quantity, it can be, and is, eliminated by the urine. When small doses of iron are taken they are completely absorbed, and passing with the portal blood to the liver are excreted in the bile.

Ignorance of this entero-hepatic circulation of iron is the cause of the difference of opinion regarding the best mode of using this remedy between experimentalists and clinical observers. The former, having noticed that nearly all the iron swallowed appeared in the fæces, even when only one small dose was taken, naturally concluded that it was not absorbed, and advised its administration only in homœopathic doses, considering larger ones to be useless and irritating. The latter, on the contrary, have obtained the best results from the use of large doses, especially in diseases of the abdominal organs. This is due to the action of iron upon the hæmatinic functions of the liver. Iron taken in large doses by the mouth is absorbed by the veins of the gastrointestinal canal, is carried to the liver by the portal vein, passes through the capillaries of the liver, is eliminated in the bile, passes again by the biliary duct into the intestine, and is expelled along with the fæces by the anus. The whole, or nearly the whole, of the iron taken by the mouth will thus appear in the fæces in the same way as if it had passed directly down the intestinal tube without being absorbed at all; but the large quantity of iron which is found in the bile after the administration of the medicine, suffices to show that a large quantity is really absorbed and circulates in the manner indicated.

Iron is not the only substance which circulates between the intestines and liver without entering the general circulation. Manganese, copper, iodide of potassium, lead, bismuth, tin, silver, gold, zinc, mercury and antimony seem to do the same; and they may thus remain in the body for a long time without being eliminated by the urine.

Curare, also, when taken by the mouth, may remain in the entero-hepatic without reaching the systemic

* 'On a Lesser Circulation between the Liver and Intestine (Entero-hepatic Circulation), and on the Reflux Hepato-renal Circulation.'—*Lo Sperimentale*, Oct. 1872.

circulation; and this is one of the reasons why it is not poisonous except when taken in considerable doses by the mouth, while a small quantity proves fatal when it is introduced directly into the veins. [It should not be forgotten that another reason is, that curare is only slowly absorbed from the intestinal canal, and is eliminated by the kidneys while absorption goes on. When the kidneys are extirpated or the renal vessels tied, the animal is poisoned, as Bernard and Hermann have shown. This fact also indicates that the curare passes into the general circulation and is not limited merely to the entero-hepatic one. The same is probably the case with other substances, and Schiff considers it to be so with bile.—*Rep.*] Lussana gives several experiments which prove that the lethal properties of curare are not lessened by the saliva, gastric juice, bile, or pancreatic juice. Saliva and pancreatic juice sometimes appear to do so, but this is merely due to the viscosity of the mixture impeding absorption. Curare can be detected in the bile after it has been given by the mouth. A dose which proves fatal when injected into the systemic veins produces no bad effects when injected into the mesenteric veins, as in the latter case it remains in the entero-hepatic circulation without reaching the systemic one.

If the dose be too large, it will not all be eliminated from the portal blood by the liver, but will enter the systemic circulation and produce symptoms of poisoning. The quantity which the liver of a medium-sized dog excretes each time that the blood it contains is changed, is not less than half a centigramme, and not more than a centigramme.

Lussana believes that the impunity with which the poison of the viper can be swallowed is due to its being retained in the entero-hepatic circulation. [As iron is eliminated by the liver even when it has been injected into the systemic circulation, it seems probable that other substances are so also; and if this be the case with the poison of the viper or cobra, emetics and purgatives may prove useful adjuncts to other treatment.—*Rep.*] Fontana found that curare administered internally in large doses killed rabbits and guinea-pigs, and Moroni and Dell'Acqua have shown that it is those animals which have an imperfect entero-hepatic circulation, i.e., in which the blood can pass collaterally from the mesenteric veins to the vena cava without passing through the liver (reptiles, birds, rabbits, guinea-pigs and cats) which are least able to resist the action of curare administered by the mouth.

They have laid down the rule, that the susceptibility of animals to the toxic effects of curare introduced into the alimentary canal is in proportion to the development of the collateral circulation of the liver; the larger and more numerous the veins which establish a direct communication between the portal vein and the vena cava, the more easily does poisoning occur, and *vice versa*. In fishes, reptiles, and birds this communication is effected by the venous system of Jacobson, and in mammals by means of anastomoses between branches of the portal vein and the vena cava and azygos vein. [In man there are also anastomoses between the mesenteric veins and those of the abdominal walls, which become greatly enlarged when the circulation through the liver is obstructed, as in cirrhosis (*Henle's Handbuch der Anatomie*, vol. iii. p. 373). If we assume this rule to hold good for metallic substances as well as curare, it will greatly assist us in understanding the susceptibility of some individuals to

mercury, etc., and the effect of diseases of the liver upon the action of medicines.—*Rep.*]

Bernard was led to believe that there was a reflux hepato-renal circulation, and that the blood of the hepatic vein passed down the vena cava and into the renal veins, from the rapidity with which substances appeared in the urine after their introduction into the intestinal canal, and still more from the fact that, when a considerable dose of atropia is given to a rabbit, it will not be poisoned, though the atropia appears in the urine in such quantities that a few drops of it put into the eye of another rabbit will cause dilatation of the pupil. He concluded that the poison had passed directly from the portal vein to the kidneys without entering the general circulation. Although his facts were right, Lussana thinks his conclusion was wrong, and that the poison did enter the general circulation, its apparent non-effect being simply due to the great power which rabbits possess of resisting the action of the poison.

Shaw has found that, when quinine is administered internally, only a small fraction of it is excreted by the urine, the remainder appearing in the faeces. Notwithstanding this, it is found that large doses are required in the treatment of intermittent fevers. If we suppose that as the gravest lesions the miasmatic poison occasions are in the liver and spleen it exerts its action chiefly on the portal system, we can readily comprehend how this powerful antiperiodic may exert its influence chiefly while in the entero-hepatic circulation without much of it entering the systemic vessels. [If we assume that fever-poisons circulate in the same way, we can at once understand that the old treatment of emetics and purgatives administered at the onset of the disease may have a beneficial effect.—*Rep.*]

Heidenhain and Laffter* have repeated Schiff's experiments on the absorption of bile from the intestine and its re-excretion by the liver, but have employed guinea-pigs instead of dogs. Instead of the secretion of bile being much increased after the injection of bile into the intestine, it became rather less than before. They attribute this, however, only to the disproportion between the size of the animal and its enormous secretion of bile. A very considerable proportion of the water in the organism is lost in the bile, and the water from the bile injected into the intestine is not absorbed with sufficient rapidity to compensate for it. In dogs or large animals, the loss of water is much less as the bile is more slowly excreted, and bears a very much smaller proportion to the size of the animal. They found, however, in confirmation of Schiff's results, that the percentage of solids in the bile excreted is increased after the injection. They consider that this increase is due to the bile injected into the intestine passing directly through the liver, and not to its indirect action causing increased formation of bile in the liver. The proof which Schiff gives of this, viz., that the guinea-pig's bile gives Pettenkofer's reaction after the injection and not before, is not altogether to be relied upon; for, when the test is applied to the normal bile of the animal with Neukomm's modification, it succeeds perfectly. They found, like Schiff, that the colour of the bile secreted becomes darker after the injection; but this occurs so quickly that it seems hardly possible that it could be due to the colouring matter of the bile absorbed from the intestine. On repeat-

* Laffter, *Experiments on the Physiology of the Biliary Secretions*. Inaugural Dissertation. Breslau, 1873.

ing the experiment, however, with tincture of rhubarb and sulphindigotate of soda instead of bile, they were able on several occasions to detect the colouring matter of the rhubarb or the indigo in the bile secreted, within one minute after these substances had been injected into the intestines. The indigo appeared in the urine in one case seven, and in another nine minutes, after its appearance in the bile.

With a view to determine whether the composition of the bile is altered when an obstruction is presented to its exit and biliary congestion takes place, a series of experiments was instituted. These were performed by tying the bile-duct, and analyzing the bile before and afterwards. They gave the following results.

1. The rapidity of the secretion of bile was found to be diminished. The experiments having been made upon guinea-pigs, this diminution is not to be ascribed entirely to obstruction of the flow of bile.
2. The percentage of solid constituents does not undergo any constant or important change. This shows that in biliary congestion the water is not removed while the solids are left, but that all the constituents of the bile are absorbed equally. Heidenhain has found that atropia paralyses the secreting nerves of the salivary glands (vide *London Medical Record*, vol. i. p. 18), but neither it nor physostigma seem to have any influence upon the secretion of bile. Nicotia causes a slight acceleration of the flow of bile at first. This is not caused by increased secretion, but is due simply to the contraction of the muscular fibres of the gall-ducts occasioned by the nicotia. Rhubarb is generally considered to be a cholagogue, but it does not increase the secretion of bile, although it passes through the liver and can be detected in the bile. Sulphindigotate of soda likewise does not increase the secretion.

T. LAUDER BRUNTON, M.D.

ABSTRACT OF A CLINICAL LECTURE ON
METEORISM. BY THE LATE PROFESSOR
OPPOLZER, OF VIENNA.*

(Continued from page 35.)

If we now proceed to make a closer examination of the condition which gives rise to meteorism, and which has been generally connected with the presence of intestinal catarrh, we find, as daily experience abundantly teaches, that on the one hand there are a not insignificant number of cases, in which intestinal catarrh is present, and in which, nevertheless, the intestine is not only not distended beyond the normal degree, but does not even exhibit the normal amount of distention, being, on the contrary, remarkably contracted; while, on the other hand, cases may be observed, especially in exanthematic typhus, in which there is no infiltration of the intestinal glands and no excessive intestinal secretions, and in which nevertheless meteorism is present in a very high degree.

Since, then, on the one hand, meteorism may not only be absent, but the intestines may be contracted, in cases of intestinal catarrh, and, on the other hand, meteorism may be developed and reach a high degree in circumstances apparently unfavourable to its production, it is plain enough that the affection of the intestines cannot be regarded as the cause of meteorism, and consequently cannot in any way be considered as connected with the

existence of this troublesome accessory of so many diseases.

With regard to the other prevalent views and hypotheses on the subject under consideration, we will here refer only to those which assume that meteorism must either be developed from the remains of the food present in the intestines, that is, from the contents of the intestinal canal, or must be ascribed to the changes undergone by the faecal masses accumulated in the bowels. But that such views must also be regarded as quite incorrect, we shall again see from a brief examination of the conditions which lie at the foundation.

It is impossible to deny the existence of a rather large number of cases, and no observer of experience can dispute their existence, in which—as one may readily be convinced when there is an opportunity of making a *post mortem* examination—although very considerable meteorism has been present during the course of the disease, yet no contents can be found in the intestinal canal, or at least only a very small quantity of mucus is to be seen, which cannot for a moment be regarded as the causal and essential condition of the meteorism. The reason why no contents are to be found in the intestines is simply this, that in consequence of the diarrhoea which has occurred some time previously, and before the meteorism has been developed and has become evident, the faecal masses accumulated in the intestine have been evacuated, so that in making the necropsy nothing more of them is to be found. But if the whole of the faeces in the intestinal canal have been discharged some time before the appearance of meteorism, and if, in spite of this, meteorism is subsequently developed, it is incontestably correct to draw the conclusion that the contents of the intestinal canal or the changes which they may undergo in the bowels can have nothing to do with the meteorism.

From these considerations it becomes self-evident that all the explanations which have hitherto been given of the cause of meteorism, and to which it has been believed necessary to have recourse in the absence of any other more probable explanation, throw no light on the true causes of the development of meteorism; and that hitherto it has only been possible to frame altogether vague hypotheses as to the condition to be regarded as the primary cause of meteorism, because it has been thought erroneously that the causes were to be sought for in the very place where they are not to be found, and especially as their existence ought to be sought in another place on which too little attention has been bestowed.

The views regarding meteorism, here alluded to and refuted, are still constantly paraded forth in the newest works of the most eminent medical authors. And meteorism itself is passed by with a scarcely credible laconic brevity and with astonishing indifference, only a few words, reaching back into the grey antiquity of theories, being dedicated to it *en passant*.

Oppolzer was led by the abundant and excellently applied opportunities which he possessed, to adopt the view that the spinal cord has an influence in the development of meteorism which has hitherto been neglected, and that the cause of meteorism is to be specially sought in the nervous system. It is an observation established by experience at the bedside that, the weaker an individual is, the more intensely is meteorism developed. For this reason, Oppolzer

* *Allgemeine Wiener Medizin. Zeitung*, Jan. 20, 1874.

was of opinion that meteorism is dependent on a paralysis of the nervous system, and that its occurrence must be regarded as an ominous symptom, inasmuch as it denotes that the sympathetic system is involved in the disorder.

(To be continued.)

LABADIE LAGRAVE ON CARDIAC COMPLICATIONS IN CROUP AND DIPHTHERIA.

IN a thesis lately published by M. Labadie Lagrave, the author clears up some obscure points in the history of diphtheria. He says that the majority of modern writers agree in vaguely referring the fatal result which frequently terminates this affection to a sort of general blood-poisoning; to a primary diphtheritic infection in some persons, to a secondary in others; but to which the imperfect state of modern hæmatology does not allow the true character to be assigned. Would it not, however, be possible to assign a more precise cause and starting-point for these mortal accidents? The author has partially replied to this question by describing a collection of lesions resulting directly from the injection of the blood in diphtheria, obtained from the analysis of a hundred cases, nearly all observed by himself.

Though M. Labadie Lagrave has specially given his attention to the cardiac complications of this disease, he has set forth the various anatomical lesions of the body with which he has met in the different organs. In regard to these, he has arrived at the following results. Vegetating acute endocarditis with fibrinous deposits, which are frequently the cause of embolism, are present in the heart in twenty-one out of forty instances. The lungs frequently contain nodules of pulmonary apoplexy or sanguineous infarctus, probably due to arterial or capillary embolism. These organs also show small venous thromboses between their lobules. Sanguineous infarctus sometimes occur beneath the pericardium, between the impaired fibres of the heart, and occasionally in the subcutaneous cellular tissue. Venous thromboses exist in the pia mater, in the brain, in the sinuses of the dura mater, in the liver, and in other parts of the body. In cases of malignant diphtheria, the muscular fibre of the heart is often degenerated (myocarditis); sometimes also the internal wall of the smaller arteries is itself inflamed (proliferating endarteritis); the kidney-substance has also degenerated (parenchymatous nephritis); and leucocytosis and albuminuria are frequently met with in connection with these lesions.

Endocarditis is the most common of all these lesions, and M. Labadie Lagrave has specially applied himself to its study. Passing to the clinical part of the work, we perceive the importance which the diagnosis of this complication may have; the diagnosis being often rendered very difficult by the latent and insidious progress of the disorder, as is likewise observed in most cases of secondary endocarditis. The danger thus run by the patients is easily seen. The endocarditis in its first stage not only impedes and complicates the course of the primary disorder, but it may in its subsequent course produce sudden or speedy death by favouring the formation of intra-cardiac clots, or may finally carry off the patients by the gravity or the extent of the cardiac accidents. These accidents may assume various forms. Sometimes the cardiac thrombosis brings on the death of

the patient in a few hours, after a more or less prolonged period of true asphyxia; sometimes death does not ensue until two or three days after the symptoms have appeared. M. Labadie Lagrave cites a more uncommon complication, which occurred in a child on whom tracheotomy had been performed. The little patient was seized with hemiplegia, and died with softening of the brain produced by arterial hæmorrhage. Endocarditis, however, is not always fatal, the book recording two well-authenticated cases of cure. The most important points to be gathered from the clinical teaching of M. Labadie Lagrave's interesting work are, that cardiac complication frequently exists in diphtheria, bringing on, when it is in relation with croup, symptoms which may simulate attacks of dyspnoea produced by obstruction of the trachea, with which it is important not to confound them. This diagnosis is equally useful both for prognosis and for treatment.

MEDICINE.

BULL ON PERITYPHLITIS.—This is an inaugural thesis, to which the New York Faculty of the College of Physicians and Surgeons awarded the first prize, and is reprinted from the *New York Medical Journal*, September, 1873. It contains, in a condensed form, a summary of almost all that is known of this disease, as regards etiology, anatomy, symptoms, and prognosis. But the best part of the treatise is the remarks on treatment, which appear to be not only judicious but worthy of quotation, at least in part. After enjoining absolute rest, and the avoidance of purgatives, as in typhlitis, together with a well-regulated diet, the use of opiates, ice, and carbonic acid in solution to check vomiting, Dr. Bull proceeds: [his remarks are here somewhat abridged].

‘When suppuration occurs, it must be hastened by warm applications, poultices, &c., to the tumour; and opium and the same general measures should be continued as before. Formerly this plan of treatment was pursued until the abscess pointed externally, when it was opened, or burst in some other direction.

‘Within a few years, however, the practice of opening these abscesses at once, without waiting for the appearance of fluctuation, has been adopted by Professor Willard Parker, of this city, and employed with success by himself and others. The propriety of the early opening of these abscesses was discussed by the earliest writers on this subject. Dupuytren was averse to the operation, because of the frequent occurrence of opening into the cæcum, and its happy results. Grisolle favoured it, as he observed that two out of ten cases in which opening into the cæcum occurred ended fatally, and that evacuation of the pus by the natural passages was often followed by external opening and death. Velpeau advised early evacuation of these abscesses; and Battersby, in his complete review of the subject of iliac abscesses, recommended it. Dr. Martin, of Lyons, in 1835 advised the application of caustic potash. Bourienne relates a case, in which a surgeon cut down to evacuate the pus, found none, was much laughed at, but the next day a free discharge took place through the wound, and the patient recovered. Mr. Hancock (*Lancet*, Sept. 30, 1848), opened such an abscess, and recommended a similar proceeding in all such cases. Dr. Willard

Parker again called attention to it, and successfully treated a case in this way. Further study of the disease gives us additional and even stronger reasons for the adoption of this plan of treatment. When the abscess opens externally, we find the danger to life from exhaustion to be extreme. Even when the pus has been discharged into the cæcum, suppuration has been prolonged till death ensued, and subsequent opening, either externally or into other organs, has occurred with fatal results in one half the cases. Pyæmia is seen to be a not unfrequent complication, doubtless induced by the thrombosis of large veins encroached upon by the growing abscess. Empyæma, fatal hæmorrhage from the erosion of large blood-vessels, perforation of almost every hollow abdominal and pelvic viscus, are all complications which arise from allowing these abscesses to run their course unmolested; all may be avoided by giving vent to the pus before it accumulates in sufficient quantity to render liable the occurrence of any of them. Dr. Stiegle (*Württemberg Correspondenz-Blatt*, vol. xi.), reports two cases, and Dr. Weber one. Of the six cases thus collected, in which, on the evidence of the symptoms, and the presence of the tumour, and without perceptible fluctuation, the abscess has been opened, five have been followed by recovery. In the one fatal, the patient was exhausted before the operation was resorted to. The knife is undoubtedly the best instrument for evacuating these abscesses.* Dr. Bull discusses the objections to the use of Vienna paste and puncture with a trocar; but inclines to the use of the aspirator, or even to a second or third trial of this instrument. A table of the six cases referred to, two by Dr. Parker, one by Dr. Weber (*New York Medical Journal*, August, 1871), one by Dr. Stiegle, and one by Dr. Kottmann, is appended; the pamphlet contains also almost a page of bibliography.

WILBRAND ON A SIMPLE METHOD OF FORCIBLY INJECTING LARGE QUANTITIES OF FLUID INTO THE INTESTINAL CANAL.—The *Berliner Klinische Wochenschrift*, Dec. 8, 1873, contains a paper by Dr. L. Wilbrand, which was written before the publication of Dr. Mosler's article, of which we lately gave a summary,* in which he recommends the use of an irrigator, such as is now commonly met with in our hospital wards for washing out wounds (i.e., a cylindrical vessel to hold the fluid, with a long flexible tube, and a nozzle or stop-cock), for injecting fluids into the bowels. He narrates an interesting case of obstruction, apparently in the small intestine, occurring in a female patient, aged twenty-two, after ovariotomy. Whilst in hospital, the obstinate constipation from which she suffered was overcome by 'electric' apparatus (probably faradisation). He had not a battery at hand, nor a long (O'Beirne's) tube; and an ordinary clyster-apparatus produced no effect. Meanwhile, the patient's condition grew worse. She was much prostrated, her extremities were cold, her pulse scarcely distinguishable, and respiration was greatly embarrassed. Under these circumstances, he bethought him of the irrigator supplied to the midwives in his district. This instrument held nearly one-and-a-half pint of fluid, the caoutchouc pipe was about 39 inches long, and furnished at its end with a firm nozzle of elastic gum about 4 inches long. Then the patient was made to rest upon her elbows and knees,

so that the anus became the highest point of the intestinal canal. [He lays great stress upon this position.] About half a gallon of water was injected in this way, the nozzle of the irrigator being passed as far as possible into the rectum. The patient bore the operation very well, and her pain was not much increased by it. Bubbles of gas soon escaped through the thin layer of water left in the cylinder, and the injection was then discontinued. No fluid escaped from the anus as long as she maintained this position. A large quantity of hardened fæces came away with the fluid when the bowels acted, which they did almost immediately, and the collapse and feelings of syncope passed off, with the administration of a single glass of wine. There had been no return of the obstruction. Dr. Wilbrand justly observes that a water-can and an India-rubber or elastic tube, might at any time, and almost anywhere, be converted into an irrigator of this sort.

W. BATHURST WOODMAN, M.D.

GUTTMANN ON PARALYSIS OF THE VAGUS IN MAN.—Dr. Guttman (*Virchow's Archiv*, vol. lix. part 1), reports the following case. A boy, six years of age, was supposed to have suffered early in May, 1873, from a very slight attack of diphtheria. In the course of a fortnight, recovery was apparently complete. But a week subsequently a series of nervous disturbances were noticed, on account of which the patient was brought to the hospital.

Dr. Guttman then found the head turned to the right; active flexion and rotation to the left were almost impossible, and, after passive execution of these movements, the head rapidly returned to its previous position. Nothing could be detected in the cervical region to account for this evident paralysis of the left sterno-cleido-mastoid. The electrical irritability of this muscle was somewhat impaired. There was slight weakness of both lower extremities in walking, and vacillation when the eyes were closed. The voice had a very marked twang, due to a complete immobility of both arches of the velum palati and of the uvula during phonation. Speech, also, had become somewhat heavy within the last few days. Swallowing was slightly difficult, but the ingesta were not forced through the nose. The muscles of the pharynx acted powerfully. There was nothing abnormal in the larynx.

The most important feature of the case was a very intense and peculiar dyspnœa. The frequency of the respiratory acts in one minute was twelve. Each inspiratory act was unusually deep, and was performed by the increased activity of all accessory muscles of respiration. The thorax was greatly distended, only the lower intercostal spaces in the axillary line and the epigastrium were drawn in during each inspiration; a phenomenon which, Guttman states, is very frequent in chronic dyspnœa, and most marked in emphysema of the lungs. Expiration was longer than normal, but was performed by the elasticity of the lungs exclusively. There was no cyanosis, and physical examination gave absolutely negative results. Pulse 120, regular. Temperature normal. His appetite was pretty good; the bowels were regular. The patient complained only of dyspnœa. Death took place on the day on which he applied at the hospital, at 6 P.M. A necropsy was not permitted.

From the resemblance which the dyspnœa just described bears to the one observed after section of both vagi, and from the absence of physical signs,

* In the notice of Dr. Mosler's paper at page 747 of the LONDON MEDICAL RECORD for Nov. 26, 1873, Dr. Sansom's name is printed as Simpson, by mistake.

Guttmann concludes that this dyspnoea was due to paralysis of the vagus, because nervous disturbances of various kinds frequently follow an attack of diphtheria.

MOSLER ON THE LOCAL TREATMENT OF CAVITIES IN THE LUNGS.—In order to prevent the dangerous consequences which are supposed to arise from the retention of pus in the lungs, Mosler (*Berliner Klinische Wochenschrift*, no. 43, 1873) injected disinfecting fluid through the thoracic walls in two cases where cavities could be distinctly recognised. The operation was not followed by pain or other constitutional disturbances, and the results were favourable.

In a third case of phthisis of long standing, complicated with amyloid degeneration of the kidneys, a cavity was opened through the thoracic walls by means of an incision in order to allow the free escape of the purulent contents. A tube was left in the cavity, and attached to the chest by means of strips of adhesive plaster. The evening after the operation the temperature was 37·8° Cent. (100·4° Fahr.); pulse, 84; respiration, 36. A large quantity of purulent substance escaped through the tube, the cough gradually diminished, and the constitutional symptoms also begun to ameliorate as much as could reasonably be expected where the disease had gone so far. Inhalations through the tube of carbolic acid and iodine, greatly diminished the quantity of the secretion, which now became good pus. The kidney-disease, however, made rapid strides, and the case proved fatal a few months after the operation. On *post mortem* examination, it was found that granulations had begun to spring up from the walls of the cavity. I. B. BERKART, M.D.

RECENT PAPERS.

- The Etiology of Pellagra. By Prof. C. Lombroso. (*Gazzetta Med. Italiana-Lombardia*, no. 49, 1873.)
A Case of Cancer of the Stomach. By Prof. N. Friedreich. (*Berliner Klinische Wochenschrift*, Jan. 5, 1874.)
On Intestinal Gravel. By Dr. Laboulbène. (*L'Union Médicale*, Nov. 29, Dec. 2.)

APPLIED PHARMACY.

GROVES ON NEPAUL ACONITE AND THE ACONITINES.—The announcement of the author at the Liverpool meeting of the British Pharmaceutical Conference in 1870 (*Pharm. Journ.*, [3], i. 433) that he had succeeded in obtaining a second aconite alkaloid in a crystalline form from Nepaul aconite does not appear to have met with universal acceptance on the continent. M. Duquesnel, whose memoir *De l'Aconitine cristallisée et des Préparations d'Aconit* gained for him the Barbier prize of the French Academy, in summing up the results of his research, states that the activity of *Aconitum ferox* is not due to its containing a more energetic principle than aconitine, but to its containing a greater quantity of that principle. M. Patrouillard, the author of a recent exhaustive treatise *De l'Aconit et de l'Aconitine*, admits the distinction between the German or true aconitine, and the English or pseudoaconitine, but endeavours to show that these substances are more or less impure varieties of a single pure aconitine. Professor Fluckiger, on the other hand, recognised in some crystals that had been sent to him, all the characteristics of the pseudoaconitine of Von Schroff, of Vienna. In order to

produce conviction by presenting to competent experimenters specimens of the different alkaloids for comparison, Mr. Groves obtained a further supply of Nepaul aconite, and the result of his operations, the details of which are given in a paper read before the British Pharmaceutical Conference at Bradford (*Pharm. Journ.* [3] iv. 293), but are too long for insertion here, is that he has offered to place an ounce and a half of crystallised pseudoaconitine at the disposal of the Conference for further investigation to determine its atomic weight. Mr. Groves used the term 'Nepaul aconite' in preference to *Aconitum ferox*, because M. Patrouillard has raised some doubt as to the original statement of Wallich that *Aconitum ferox* is the sole source of bikh.

The remainder of the paper is devoted to a report upon some of the characteristics of the aconite alkaloids, those reported upon being crystallised aconitine and amorphous aconitine derived from *Aconitum Napellus*; and Morson's aconitine, pseudoaconitine in crystals, amorphous pseudoaconitine, and napellin derived from Nepaul aconite. When boiled in a test-tube with a small quantity of water, Morson's (amorphous) aconitine and the amorphous pseudoaconitine were fused and stuck to the glass; napellin also was readily fusible; but the others were not. Heated destructively in the bottom of a test-tube, all these preparations gave off acid vapours of the same odour as the pyroligneous acid used for curing hams. The vapours given off by quinine and strychnine under the same circumstances were alkaline. The aconitines heated with hydrate of soda gave off ammonia. In solutions of ammonia containing respectively 1½ per cent. of alkali and half that quantity, they were soluble in the following proportions. No deduction was made for the nitric acid in the nitrate, the salt being anhydrous and the nitric acid was set against the hygroscopic water of the other samples.

| One grain of alkaloid soluble in | Stronger Ammonia Water. | Weaker Ammonia Water. |
|-------------------------------------|-------------------------|-----------------------|
| Crystallised Nitrate of Aconitine . | 520 | 589 |
| Amorphous Aconitine . . . | 1,005 | 860 |
| Crystallised Pseudoaconitine . . . | 2,674 | 2,500 |
| Amorphous Pseudoaconitine . . . | 1,489 | 1,372 |
| Morson's Aconitine . . . | 881 | 684 |

This shows that crystallised aconitine is by far the most soluble of the series, and it alone is more soluble in the stronger than in the weaker ammonia water. Amorphous aconitine approaches in character the pseudoaconitines, being less soluble than aconitine, and more soluble in the weaker than in the stronger ammonia water. The much smaller solubility of crystallised pseudoaconitine distinguishes it at once from the aconitines, with which it has been persistently confounded. It is also slightly more soluble in the stronger ammonia water. The action of heat on these ammoniacal solutions was equally characteristic, and the difference in their degree of permanence was very marked. Crystallised aconitine, after twenty hours, was much diminished in strength, and ten hours later the alkaloid had entirely disappeared. Amorphous aconitine was more stable, and crystallised and amorphous pseudoaconitine still more so. Morson's aconitine also very slowly decomposed, approaching in permanency the pseudoaconitines. Indeed, Mr. Groves is disposed to think that it is

pseudaconitine with its apparent solubility increased by a large admixture of napellin. The author knows of no colour-reactions of these alkaloids. Boiled with solution of ammonium chloride they all, especially the pseudaconitines, liberate ammonia. Of the aconitines the crystallisable salts are numerous, but the salts of pseudaconitine are too soluble both in water and in spirit, to allow crystallisation. They arrive at the state of syrup, and pass from that to a transparent glass, which, when it becomes absolutely dry, cracks up into scales. The crystals of pseudaconitine are entirely dissimilar to those of aconitine. Mr. Groves thinks it probable that there are two series of allied alkaloids, the one furnished by *Aconitum Napellus*, the other by *Aconitum ferox*, or some other Indian aconite. Each species seems to yield its crystallised aconitine, its amorphous aconitine, and its napellin. Should his conjecture prove correct, he suggests that the prefix 'pseud' should be replaced by 'ind.'

ALLEN ON THE ANALYSIS OF TEA.—In a paper read before the British Pharmaceutical Conference, Mr. A. H. Allen of Sheffield criticises the methods usually followed in the examination of tea for the purpose of detection of adulteration (*Pharmaceutical Journal*, iv. 331). The three principal constituents of tea are tannin, gum and woody fibre, with smaller quantities of some albuminoid body, theine, colouring matters, chlorophyll, essential oil, etc. The proportions found by different analysts vary very much, the difference evidently depending upon the methods of determination employed. Mr. Allen finds that the estimations of tannin present the greatest variations, and in many cases are manifestly wrong. Hassall directs to exhaust a weighed quantity of dried tea with hot water, dry and weigh the residue as 'woody fibre'; to precipitate the infusion with alcohol and so obtain the percentage of gum; and then to estimate the tannin by difference. By this method other matters are reckoned as tannin, and too high a result obtained. The same may be said of an alternative method of the same author, to precipitate the tannin by a solution of gelatine, and weigh the precipitate, 100 grains of it being taken as equal to 40 of tannin, since the precipitate of leather carries down with it a large and variable quantity of colouring matter. The author has found a modification of the latter process, in which the tannin is volumetrically estimated by means of a standard solution of gelatine to give very concordant results. Twenty grains of tea are boiled for half an hour in three or four ounces of distilled water, the solution drained off, and the leaves boiled again in a little more water, the two solutions mixed and made up to a measured quantity. One tenth of this liquid (equal to two grains of tea) is placed in a beaker with an equal bulk of water and a standard solution of gelatine added, about five grains at a time, with repeated stirring. When the precipitation appears to have terminated, a small quantity is filtered into a test-tube and tested with a little solution of gelatine separately. If a further precipitation takes place it must be returned to the bulk and more solution having been added, the operation repeated until no further precipitate is formed. It is then tested with solution of tannin to insure that the limit has not been passed. The operation is then repeated on half the original solution (ten grains of tea), the results obtained in the preliminary test enabling the operator to add nearly the required amount of gelatine solution at once. The results

may be further corroborated by testing the remaining portion (equal to eight grains). The standard solution of gelatine the author makes by dissolving forty grains of Nelson's gelatine in 7,000 fluid grains (sixteen ounces) of distilled water and adding fifteen grains of powdered alum to facilitate the subsidence of the precipitate. The strength of this solution may be tested by means of a standard solution of pure tannin. By the above process the author found in black tea of good quality 12·5 per cent. of tannin, and in green tea about 19 per cent., figures approaching closely those given by Mulder, viz., black, 12·88; green, 17·80. He considers the estimation of the tannin of the first importance, since if it reaches the normal amount all question of adulteration by exhausted leaves is at an end, and that the only fallacy in such a conclusion would be caused by an admixture of catechu or sloe leaves.

The 'insoluble' matter Mr. Allen estimates by boiling the tea in water as long as the water is coloured by its straining, and drying the residue. With good teas the results obtained have been very constant, varying from 50·5 per cent. to 51·2 per cent. in green teas and from 58·7 to 60·8 per cent. in black. Any large excess of this average would imply the probability of a mixture of exhausted leaves.

To estimate the 'gum,' the solution strained from the 'insoluble matter' is evaporated to a syrup, treated with redistilled (methyated) spirit, the precipitate of gum washed with spirit, dried, and weighed.

The percentage of gum, insoluble matter, and tannin, will enable an analyst to form a very accurate opinion as to the presence or absence of exhausted leaves. To illustrate this, the following table is given in which the results obtained by the foregoing methods from a sample of very superior black tea are placed in juxtaposition with the numbers obtained after some of the same sample had been infused in the usual manner in the teapot, no second addition of water being made, and the leaves redried.

| | Original Tea. | Exhausted Tea. |
|--------------------------|---------------|----------------|
| Moisture | 9·2 | 11·1 |
| Insoluble Matter | 58·7 | 87·5 |
| Gum | 10·5 | 3·8 |
| Tannin (by Gelatine) . . | 15·2 | 3·3 |

From this it will be seen that such an exhaustion of the leaves results in the increase of the relative proportion of insoluble matter by nearly 30 per cent., whilst the gum and tannin are much reduced in amount. Generally the exhausted leaves are redried and made up with gum, which dressing gives them a peculiar glossy appearance, and is detected upon analysis through excess of gum.

The original paper is accompanied by details of the results obtained upon the analyses of numerous specimens of tea, which have been examined by Mr. Allen in his capacity of analyst for the borough of Sheffield.

WANKLYN ON ANALYSIS OF TEA.—Mr. Wanklyn calls attention to the fact that the ash of genuine tea-leaves contains a considerable proportion of oxide of iron, amounting, according to Zoller, to 4·38 per cent. of the ash (*Chemical News*, xxviii. 186). From this it is evident that the mere qualitative detection of oxide of iron in the ash of tea is no valid proof of adulteration, unless it sensibly exceed 4 per cent. of

the whole. Mr. Wanklyn also calls attention to the importance of investigating the ash of samples of tea. Several samples examined by himself yielded from 5·30 to 5·99 per cent. of ash, and an average of 5·75 per cent., closely approaching the 5·63 per cent. found by Zoller. These determinations were with air-dried tea; absolutely dry tea yields 5·92 per cent. This percentage and the relative proportions of its soluble and insoluble in water differ considerably from that of other leaves, as will be seen by the following results made last August by the author.

| | PERCENTAGE OF ASH FROM DRIED LEAVES. | | |
|----------------------|--------------------------------------|-------------------|---------------------|
| | Total. | Soluble in Water. | Insoluble in Water. |
| Common Tea . . . | 5·92 | 3·55 | 2·37 |
| Paraguay Tea . . . | 6·28 | 4·22 | 2·06 |
| Beech | 4·52 | 2·00 | 2·52 |
| Bramble | 4·53 | 1·84 | 2·69 |
| Hawthorn | 8·05 | 3·78 | 4·27 |
| Raspberry | 7·84 | 1·72 | 6·12 |
| Willow | 9·34 | 4·16 | 5·18 |
| Plum | 9·90 | 5·66 | 4·24 |
| Elder | 10·67 | 3·19 | 7·48 |
| Gooseberry | 13·50 | 7·83 | 5·67 |

From this table it appears that the ash of Paraguay tea is the only ash that could not by its total percentage be readily distinguished from tea-ash; it, however, differs from the latter by containing a higher proportion of soluble matter. In estimating the ash, Mr. Wanklyn burns two grammes of dried leaves in a small platinum dish, and when the resulting ash has become grey, the dish is allowed to cool, and is then weighed with its contents. The ash is next boiled with a little water, the solution filtered and evaporated to dryness, and the residue ignited, cooled, and weighed. These operations give the 'total ash' and the 'soluble ash.' The 'insoluble ash' is estimated by difference. Any sand that may be present remains in the insoluble portion, and does not dissolve when that is treated with hydrochloric acid, although the portion of real tea-ash insoluble in water is almost entirely soluble in hydrochloric acid.

Mr. Wanklyn also points out that the composition of the ash of normal tea-leaves differs considerably from that of spent tea-leaves. The latter is far less rich in alkalies and much less soluble. Zoller's analysis of the two kinds are represented as follows.

| | Unused Leaves. | Spent Leaves. |
|---------------------------------|----------------|---------------|
| Potash | 39·22 | 7·34 |
| Soda | 0·65 | 0·69 |
| Magnesia | 6·47 | 11·45 |
| Lime | 4·24 | 10·76 |
| Oxide of Iron | 4·38 | 9·53 |
| Protoxide of Magnesia | 1·03 | 1·97 |
| Phosphoric Acid | 14·55 | 25·41 |
| Sulphuric Acid | Trace | Trace |
| Chlorine | 0·81 | Trace |
| Silica | 4·35 | 7·57 |
| Carbonic Acid | 24·30 | 25·28 |
| | 100·00 | 100·00 |

HOWIE ON THE EXAMINATION OF POWDERED RHUBARB, AROMATIC CHALK POWDER, AND MUSTARD.—The author, in a paper read before the British Pharmaceutical Conference (*Pharm. Journ.* [3] iv. 354) describes a test for the presence of turmeric in the above substances, which is based upon the free solubility in chloroform of curcumine compared with that of the other colouring matters. The test may also be used to distinguish the finer qualities of East Indian rhubarb from inferior or European varieties. The test for rhubarb consists in placing about five grains of the powder on a small piece of blotting paper, in a small compact heap, flattened at the top, and dropping chloroform cautiously on to the centre of the powder, until the chloroform, slowly percolating to the circumference and carrying with it any soluble matter, extends nearly an inch from the powder. When the paper is dried, it will be found that a yellow stain of varying intensity has been left round the powder. With really fine bright-coloured East Indian rhubarb the stain is scarcely perceptible, but cheaper and darker samples may yield a brilliant yellow, whilst the finest bright-coloured English powder will give a yellow stain as deep as, or in most cases deeper than, the darkest East Indian. If turmeric be present in any quantity, this also yields a brilliant yellow stain. To distinguish between the stain from inferior rhubarb and that from turmeric, place a little powdered borax, or a drop of a saturated solution of boracic acid, on the deepest part of the stain, and then with a glass rod deposit a single drop of hydrochloric acid on the borax. In a few seconds, if the stain be from turmeric, a distinct red is produced, which is changed to black or greenish-black by solution of potash. No change except a slight bleaching takes place if the yellow be due to rhubarb colours only. Solution of potash also changes instantly the yellow turmeric stain to a more or less brown tint, whilst a pure rhubarb stain gives a reddish purple colour. By this means, the author states the presence of 0·05 per cent. of turmeric can be detected. As turmeric often carries wheaten flour or farina in its train, its presence in rhubarb should be looked upon with suspicion.

A powder offered as East Indian rhubarb, of pale brilliant colour, having the usual characteristics of that variety, should give but an exceedingly pale tint. Should a deep yellow be given, the author would suspect English or French contamination. An East Indian powder of dark hue, however, may give almost as deep a colour as the English, and still be genuine, though he would then judge it to be the product of unpicked roots, trimmings, or even worm-eaten pieces, according to the depth of tint. Some specimens of Turkey rhubarb yielded similar results.

The cause of this varying colour yielded by different rhubarbs is somewhat obscure. Chloroform seems to dissolve out the coloured resinous principles erythretine, phaeoretine, and aporetine, while the crystalline principles, chrysophanic acid and emodine, are left behind. This may be shown by percolating East Indian rhubarb with ether after chloroform; upon the evaporation of the ether crystals of chrysophanic acid are left. It is noteworthy that English and French rhubarbs treated thus yield no such crystals, the residue being a minute quantity of pale brown gummy extractive; though from all varieties distinct brownish acicular crystals, probably emodine, are obtained. The author suggests that chrysophanic

acid, which is recognised as the chief principle of rhubarb, by continued exposure to atmospheric influences, absorbs oxygen, and is converted into the above-mentioned resins, which indeed some have not accepted as distinct principles, but assert to be impure chrysophanic acid. It would thus become soluble in chloroform.

In the same manner the substitution of turmeric for saffron in aromatic chalk powder may be detected by chloroform, since crocine, the colouring matter of saffron, is not soluble in it. The test may also be used for the detection of turmeric in mustard condiment.

B. H. PAUL, Ph.D.

DERMATOLOGY.

FOOT ON CHROMIDROSIS.—Dr. A. W. Foot (*Irish Hospital Gazette*, Dec. 1, 1873) relates a case occurring in a girl of seventeen. She was studious, excitable, and subject to severe nervous headaches. After three weeks of headache, a blue stain appeared on the forehead, which slowly returned when wiped off, and had all the characters of coloured sweat. It frequently appeared on the whole face. There seems, in this case, to have been no possibility of deception. The blue exudation was particularly excited by local warmth, by stooping, and by blushing. The veins of the forehead were somewhat enlarged, and the eyes occasionally oedematous. While under observation headaches frequently returned, appetite was bad, and on one occasion the patient walked in her sleep. The catamenia were only occasionally suppressed, but were generally tardy. The only other part on which the blue sweat appeared was the back of one hand, and this on a single occasion.

The internal treatment pursued was 'first bromide of potassium, on the supposition of 'congestion of the brain from overwork;' then hydrocyanic acid and calumba; and lastly arsenic; but none of these drugs appeared to have any effect on the blue sweat. Locally lead and zinc ointment was applied without benefit, and afterwards flexible collodion (made with castor-oil and Canada balsam) as a direct astringent. But this also was of no service; for, though it prevented the exudation where it was applied, the region of blue discoloration spread beyond the limits of the collodion. The headaches first appeared in December, 1869, the chromidrosis three weeks later. By June in the following year, menstruation became regular under aloes and other appropriate treatment, and from that time the blue sweat appeared less frequently, while the headaches became rarer and less severe. Before the end of 1870, the peculiar exudation had appeared for the last time.

The only local treatment which Dr. Foot thinks was of any value was a lotion of four drachms of hyposulphite of soda in four ounces of water, applied as constantly as possible. This was on the hypothesis that the blue colour depended on the formation of indigo-blue by oxydation of indican. The urine was examined for the latter compound, but without result.

[Similar cases have been recorded by Sir Benjamin Brodie (*Med. Chir. Tr.*, vol. xxviii.), and by many other trustworthy authorities; but their existence has been doubted or denied by Roger, Hebra, and Mr. Wilson. In a case recorded by Dr. Kollmann, of Würzburg (*Neumann, Hautkrankheiten*,

p. 65), the sweat appeared first uncoloured, and gradually acquired a deeper blue tint. Chemical analysis showed the presence of phosphorus and iron. The pigment was insoluble in water, and the colour was not discharged by alkalies. The patient was a man aged forty, of very weak and nervous temperament. The present case, in addition to those published by Dr. Foot in the *Dublin Quarterly Journal* for 1868, forms a satisfactory proof of the genuineness of this curious affection.—*Rep.*]

P. H. PYE-SMITH, M.D.

VEIEL ON THE TREATMENT OF LUPUS ERYTHEMATOSUS.—Dr. Theodore Veiel, in an inaugural dissertation (Tübingen, 1872), gives a record of all the cases of lupus erythematosus which have been treated at the institution of his father and brother at Canstatt during the past seventeen years, with a good description of its natural history, and a detailed account of the various forms of treatment there employed against it. Up to the time of its publication, the best results were obtained by chloride of zinc in solution in an equal quantity of alcohol, used as follows. A blistering plaster is first applied to the whole affected part. The epidermal covering, which forms a thick and opaque coat, is then removed, revealing the deep-red velvety papillæ, sharply defined by contrast with the firmer and paler healthy portions. The diseased parts are then painted with the solution. The pain is considerable. The yellowish-white varnish-like crust which forms is removed by poultices on the third or fourth day, and the cauterised parts are found covered with epidermis, offering in this respect a marked contrast to lupus vulgaris, which exhibits, under similar treatment, a surface of exuberant granulations, which cicatrises much more slowly. Points which still remain open quickly heal under the use of the alcoholic solution of chloride of zinc, diluted one-third with water. Cauterisation in this way is repeated until the cure is complete. Although the scars are larger than after spontaneous cicatrization, they are not in the majority of cases disfiguring.

In an article on the treatment of lupus and lupus erythematosus (*Archiv für Dermatologie und Syphilis*, vol. v. part 2, and *Boston Medical and Surgical Journal*), Dr. Ernst Veiel gives a detailed account of the later method employed at the Cannstatt Skin Hospital, which is a combination of the chloride of zinc cauterisation above described, and Volkmann's method of scarification. For this purpose, and to prevent the great loss of blood which often follows the use of the customary single lancet, 150 to 200 grammes generally flowing when the operation is prolonged for the necessary half-hour, in ordinary cases affecting the face, he has designed a set of blades placed side by side, and inserted in a common handle, by which six punctures are made simultaneously. The duration of the operation is reduced to five or ten minutes, and thus more immediate attention may be given to controlling, by pressure, the hæmorrhage. On this account, too, the necessity for the use of anæsthetics during the operation is diminished; although, as the author says, the principal effect upon the patient is not produced by the scarification and cauterisation, but by the persistent pain which often lasts eighteen or twenty-four hours, and then 'the danger which is a part of every administration of chloroform is out of all proportion to the amount of pain to be endured.'

Directly after the puncturing, the parts are cau-

terised with the alcoholic solution of chloride of zinc. Superficial suppuration follows, and crusts form, which fall off in from six to ten days, after which the puncturing and scarification are again performed. This is repeated until a smooth and uniform cicatrix is formed, which subsequently becomes white. Generally, five to eight times are sufficient for a perfect cure. Relapses, however, are not wanting, even with this treatment, manifesting themselves as red points in the cicatrix, which by confluence are converted into true lupus spots; but these are easily nipped in the bud by a repetition of the treatment.

In ordinary lupus, Dr. Veiel thinks this method effects a material reduction in the time of cure. A longer period, however, between the operations is required, inasmuch as ulceration often occurs in the parts most deeply cauterised, which must be healed by repeated applications of the diluted solution of chloride of zinc before another scarification.

ELECTRO-THERAPEUTICS.

ONIMUS ON DIFFERENCES IN THE PHYSIOLOGICAL ACTION OF INDUCED CURRENTS ACCORDING TO THE NATURE OF THE WIRE.—M. Onimus (*Comptes Rendus*, Dec. 1) procured three similar induction coils, with wires of copper, lead, and German silver, respectively. The diameter was the same; the length, 210 mètres (230 yards) for each of the wires. All the coils were acted on in the same way by the induced current.

On the nerves and muscles of a healthy man, the effects of shock are different according to the nature of the metal; and it may be said generally that, when the wire of the coil is of a metal which conducts electricity badly, the contraction is greater, and the impression on the cutaneous nerves more vivid, than when the wire is of good conducting metal (copper, for example).

These effects are the more marked, the greater the external resistance. Thus, on passing the current through alcoholised water, and diminishing it to a minimum, at which the muscular contractions did not occur with the current produced in copper wire, it was possible still to obtain contractions, other conditions being the same, with a coil of German silver wire. The lead, being a worse conductor than copper, but a better than German silver, gave intermediate effects.

In superficial muscles, the difference between the currents of the copper coil and those of the German silver, is still more pronounced; and it increases, the thicker the epidermis, and the deeper the muscle. The impression from the lead or German silver wire is deeper; it is less irradiated on the superficial nerves of the skin. On the sensitive nerves, situated in the substance of the tissues, the excitation is perhaps more vivid than that from the copper wire, but the pain is less acute and shooting. M. Onimus concludes from the facts described, that the induced current in badly conducting wires has a greater tension than that in good conductors.

He further obtained tracings of the muscular contractions produced by the different coils. These distinctly indicate the more energetic action of the German silver coil. Employing the minimum current, and the conditions being exactly similar, the curve from each contraction is much higher for the German silver, than for the copper coil. Moreover,

with the German silver coil the contractions are regular and equal, and all show the double shock, due to closing and opening. The tracing from the copper coil presents more irregular contractions; several of them are very slight, and it is rare that the double shock is perceptible. These differences are more marked, the thicker the epidermis through which one operates on the muscle. If the rheophores be inserted in the muscle of which a tracing is to be had, the difference still appears, but is very slight. In this case, the tracing which gives the contraction for the copper coil, also shows the two shocks.

On further study of these tracings, it appears that the shock produced from lead or German silver wire has a slightly longer duration than that from copper wire. These experiments also show that the tension is greater in currents induced in lead or German silver wires. It is, at the same time, remarked that these differences, from the physiological point of view, connect themselves with those between the extra-current and the induced current, properly so called. If the currents from wires of lead or German silver have a much greater tension than those from copper, they have, on the other hand, an inferior quantity, owing to their bad conductivity. Thus, in experimenting with the same coils, while the current from the copper gave, in the galvanometer, a deflection of 20 to 25 degrees, the current from the lead gave $1\frac{1}{2}$ degrees, and that from German silver only half a degree. M. Onimus suggests that, in view of the facts above stated, German silver might with advantage be used in electro-medical apparatus; (lead is less suitable for making a fine wire).

ALEX. B. MACDOWALL.

AMUSSAT ON THE TREATMENT OF SERO-SANGUINEOUS CYSTS OF THE NECK BY ELECTRICITY. Dr. Amussat, jun. (*La France Médicale*, Nov. 1873) has described two cases of this kind which he treated by the galvanic cautery, and by galvano-puncture. Such cysts may become developed in the thyroid body, the lymphatic glands, and the connective tissue of the neck. If not very large, they are simply disfiguring; but, if they grow much, they interfere with deglutition and respiration, compel the patients to carry the head either laterally or forward, and generally determine habitual congestion by compressing the vessels of this region. They contain various substances, but mostly simple serum, or serum mixed with blood, or pure blood. One of Amussat's cases was that of a man, aged sixty-nine, who had a tumour on the right side of the neck; it was fluctuating, not tender, had not given rise to discoloration of the skin, and extended from the angle of the lower jaw to the sternum. An exploratory puncture with a trocar brought away a quantity of a chocolate-coloured liquid. The cyst was allowed to fill again, and then the galvanic cautery was used in the following manner. The tumour was punctured above the internal extremity of the collar-bone with a long explorative trocar, which was directed obliquely upwards and backwards, so that the point came out behind the angle of the lower jaw; the stilet was then taken out, and a platinum wire substituted for it, the extremities of which projected beyond its entrance and exit for about ten centimètres each way. The end of the cannula of the trocar was then brought back into the interior of the cyst, and the contents were evacuated, after which it was withdrawn. The two ends of the wire were then seized with clamps connected with a galvanic cautery

battery; the wire was rendered red hot, and the interior of the cyst cauterised, care being taken to bend the wire laterally so as to act upon different portions of the internal wall of the sac. Poultices were then used, and there was neither local nor general reaction. About a month afterwards (!) the platinum wire was withdrawn, and the opening sores dressed with a cerate and cotton-wool. Five months afterwards these small sores had completely healed, and the patient was well. He was seen again six months later, when the only indications left of the tumour were two small cicatrices at the points of entrance and exit of the wire.

The second case was that of a lady, aged twenty-four, who had on the left side of the neck a tumour of the size of a nut, just above the carotid artery. Iodine had been used externally without success. Amussat introduced two fine steel needles connected with the poles of a small Bunsen's battery, and allowed the current to pass through it for five minutes. A somewhat larger battery was then used, and altogether forty-five applications were made, which were followed by external use of the tincture of iodine, and the tumour ultimately disappeared. Amussat does not think that the tincture of iodine had much to do with the cure, as it had already been used before without result, and the tumour was considerably diminished by the galvano-puncture alone before the iodine was again resorted to. He also says that, if he were again called upon to use the galvanic cautery in cases like the one just mentioned, he would take the platinum wire out immediately after the operation, and thereby shorten the duration of the treatment.

JULIUS ALTHAUS, M.D.

REVIEW.

Lectures on Madness. By EDGAR SHEPPARD, M.D.
London: Churchills. 1873.

Dr. Sheppard publishes seven lectures written for the students of King's College. In the first lecture he considers insanity generally, its prevalence and causes, predisposing and exciting. 'A great many seemingly small and trivial circumstances go towards conditioning a disturbance which ultimately eventuates in disease.' He lays great stress on the study of the natures of the young, their parental antecedents, proclivity and temperaments. A nervous child should be placed in a strong-minded family; that is, with those who have the will in complete domination, never allowing themselves to be betrayed into doubt or vacillation. Insanity is slightly more common in males than in females, in the agricultural more than in town populations. As to the exciting causes, we obtain very uncertain information, cause and effect being often confounded. Many so-called moral causes have a physical cause in the background, as drink or starvation. The most frequent of physical causes is intemperance, and this is often a symptom of an inherited neurosis. The importance of early treatment in insanity cannot well be over-estimated, but the difficulty attending it is immense, as friends will not believe in the danger that is impending.

In his second lecture, Dr. Sheppard notices briefly some of the appearances found in the brains of the insane; and after some remarks on classification, especially that of Pinel, viz.: mania, melancholia, dementia and idiocy, to which he adds general paralysis, he passes to the subject of melancholia, which he describes

as simple, acute, and *melancholia attonita* or *mélancolie avec stupeur*. He strongly advocates in this disorder the use of the Turkish bath, as well as of bathing generally. He prefers chloral to opium. When food is refused it must be given by artificial feeding, and Dr. Sheppard prefers the stomach-pump to any other mode of feeding. 'As long as a man has got a mouth, and it can be opened (and I have never seen one that could not be opened), I shall continue to regard it as the legitimate highway to the stomach.' Great precautions are to be observed here with regard to suicide.

The third lecture is occupied with the subject of mania; and a case of acute delirious mania occurring in a girl of nineteen is related, in which packing in the wet sheet was attended with the best results, and the mania at once subsided. If it do not subside, but alternate with melancholic symptoms and refusal of food, an asylum will be necessary. The diagnosis is important; it must not be confounded with other forms of delirium. Acute mania is illustrated by the case of a gentleman, thirty-six years of age, a stock-broker, whose business had caused him much anxiety. Incoherent hilarity and mischief were the leading features. He had been ill for nearly two months, and removal to an asylum was recommended. He improved, but had three relapses before recovery took place, which happened in about seven months. There was no hereditary taint, no fixed delusion. To procure sleep digitalis is to be given, or chloral. Simple mania generally comes on gradually, and may pass off quickly, or may assume the form so often termed monomania. If it be recurrent, the prognosis is most unfavourable. To this variety belongs the *folie circulaire* of the French, where mania alternates with melancholia.

In the fourth lecture, Dr. Sheppard considers moral insanity. It is beyond doubt, as Esquirol pointed out, that moral alienation is the proper characteristic of mental derangement. Whatever the difficulty in detecting hallucinations or delusions, there is no exception to the rule of perversion of the passions and moral affections. In cases of moral insanity it is important to inquire into the antecedents, personal and ancestral, of the individual. The insane temperament may be also of idiopathic origin. Its characteristics are vanity, restlessness, capriciousness, impulsive action with general eccentricity of thought and feeling. In *impulsive* insanity, as in *moral*, no delusions are to be found; there is impairment of volition, from perversion of feelings, desires and appetites. Where an homicidal act is committed, there is generally evidence of previous derangement. Epilepsy is often at the root of desperate attempts at homicide, an instance of which in a youth aged thirteen is recorded. Both parents were intemperate. Dr. Sheppard then briefly notices dementia, acute primary, and chronic primary. The prognosis of the first is favourable. The treatment consists of good living, quinine, wine, warm clothing, Turkish baths, and a galvanic current applied to the spinal column night and morning. The diagnosis of chronic primary dementia is not always easy; failure of memory is one symptom; it often follows apoplectic and hemiplegic attacks.

The fifth lecture contains an account of puerperal insanity, or rather insanity appearing at the puerperal season, which may be mania, melancholia or dementia, and may occur, 1. during the process of utero-gestation; 2. immediately or shortly after labour; 3. at a later period, during and from lactation. Mania

belongs to the second period; melancholia to the first and third. The rich are more often attacked than the poor, and such cases are, in the majority of instances, treated at home. The prognosis is very favourable, but depletion must be carefully avoided. Suicidal and homicidal attempts are specially to be guarded against in this form. Chloral and succus conii are the best hypnotics, or a basin of brandy and sago. In the next lecture is described general paralysis of the insane, its incubatory stage, its second or insane stage, and the third, that of complete dementia and paralysis. Dr. Sheppard considers that this disease is incurable, and that exhaustion from whatever cause, sexual excess, fast living, or intemperance, is the cause. The concluding lecture contains some remarks on idiocy and imbecility, on criminal responsibility in homicidal mania, and on feigned insanity. In conclusion, the author advocates restraint in exceptional and extreme cases.

G. FIELDING BLANDFORD, M.D.

On Relapsing Fever; with Special Relation to the Epidemic in Bradford in 1869-70. By A. RABAGLIATI, M.A., M.D., Honorary Medical Officer to the Bradford Fever Hospital.

We are at a loss to understand why this paper was published. It adds no new fact to our knowledge, nor throws any fresh light on the history, the etiology, the symptoms, or the treatment of relapsing fever. The writer professes to give an account of this fever as it appeared in Bradford in 1869-70, but he appears to us to have omitted to state many things of importance in any account of an epidemic. For instance, it is not stated when the disease commenced nor when it ended. No mention is made of the number of the cases, of the recoveries, or of the deaths. We are told that the disease chiefly affected poor people, but whether chiefly young or old, or all ages equally, is not stated. Dr. Rabagliati opens his paper with a definition of relapsing fever, differing in no important particular from the ordinary definitions; and he then proceeds to state that the disease as observed in Bradford differed in 'four rather important particulars' from Dr. Murchison's description of it. As we read the account of the Bradford epidemic, however, we do not think that it differs in any important particular from the description given by Dr. Murchison. We select for examination one of these particulars. Dr. Rabagliati says (particular 4th):— 'In the very important matter of the rash, I confidently assert that while there was no rash present in the majority of our cases, there certainly was one in the minority of them. In this particular the Bradford epidemic appears to have differed from all previously described epidemics of relapsing fever in Britain,'— a statement wholly incorrect, and which the writer could not have made if he had studied his subject with sufficient care. Reference to page 353 of Dr. Murchison's work on *Continued Fevers* will show that Dr. Murchison himself observed a rash in eight out of about 600 cases, in the recent London epidemic, and he mentions several other home authors who have made like observations. 'It appears' (says Dr. Murchison) 'to be more common in some localities than in others. Thus Tennent found a rash in 24 out of 352 cases at Glasgow.' Dr. Rabagliati himself only mentions two cases; one of them, in the opinion of the reviewer, a very doubtful one. Indeed, the impression produced in our mind from reading this paper is that, during the prevalence of the relapsing epidemic in Bradford,

typhus, enteric, and relapsing fevers existed at the same time, and that one of these diseases was occasionally taken for the other.

The only original matter in the paper is a suggestion that relapsing fever bears to typhus a relation somewhat like that which vaccinia bears to small-pox. Dr. Rabagliati bases this supposition on the ground that the few cases of typhus (number not stated) which he observed to follow relapsing fever were mild, and that they all recovered; an argument which might have force if it were shown that the majority of cases of typhus were severe except in persons who had been protected (to use a word suggested by Dr. Rabagliati's speculation) by a previous attack of relapsing fever. Unfortunately for the writer's argument, hundreds of cases of typhus are mild, and hundreds recover where there has been no protection from relapsing fever; and besides, the number of cases in which one specific disease has immediately or soon after followed another are too few to establish general propositions. We should like to know the number of cases upon which the following law is suggested: 'When the organism has already suffered from a specific disease, it is to some extent modified by it, so that it is less likely to be seriously endangered by another, and generally graver, specific disease succeeding the former, than if the more deadly attacked first.'

Dr. Rabagliati has appended to his paper several temperature charts, which would have had considerable value if the temperatures had been taken every hour or every two hours; but as they were only taken twice daily, to wit, morning and evening, it is impossible to say in how many cases the highest and lowest degrees have been obtained. We presume that the object in using a thermometer is to ascertain the maximum and minimum temperatures in the twenty-four hours, and specially the duration of the maximum temperature, which is quite impossible if only morning and evening observations be made. If the highest and lowest temperatures occurred at fixed evening and morning hours, observations made at those hours would be valuable; and even then, the important question of duration would not be ascertained. We cannot speak from actual thermometric observations of relapsing fever, but we can of enteric; and, from numerous hourly and two-hourly rectum observations, we should say generally that the maximum temperature may occur at any time between 10 A.M. and 10 P.M., and the minimum at any time between 10 P.M. and 10 A.M. We have not unfrequently observed the maximum temperature at noon, at 2 P.M., at 4 P.M., and so on. The same difference as to time has been observed in the minimum temperatures. If this be true, and our experience is confirmed by Professor Ziemssen, morning and evening observations must be of little value.

ALEX. COLLIE, M.D.

Fifth Annual Report of the Sanitary Commission of the North-Western Provinces: for 1872. Allahabad: 1873.

Although presenting no very striking features, this report is still a very satisfactory one; for it shows how we are becoming better acquainted with the habits of our fellow-subjects, and are gradually persuading them to co-operate with us in improving the sanitation of the country. The local municipalities are beginning to recognise the value of the registration of deaths, and have done something towards procur-

ing what is far more difficult to obtain, a registration of births.

Dr. Planck's report is distinguished from others of the kind, in manifesting a more minute knowledge of the habits of natives than such documents often show, and in the display, which he almost unconsciously makes, of the great interest which he takes in the general well-doing of the population. Work like that of Dr. Planck's is of more practical value than the dogmatical enunciation of opinions on disputed subjects, or those smart attacks on the views held by rival sanitary commissioners, of which we have had too many.

Dr. Planck points out at considerable length, how very imperfectly we have made our railway arrangements understood by natives; what difficulties third-class passengers have, first in obtaining their tickets, and afterwards in reaching their carriages. He also explains in detail, and suggests remedies for, many of the inconveniences, very serious to health, to which such passengers are subjected, and which, he believes, have hitherto prevented our railways from being used by natives at all to the extent that might have been anticipated. The Commissioner offers some remarks, though not of a very conclusive nature, on the connection which subsists unfortunately in all climates between irrigation and fever. In India, and in other countries, a too abundant supply of water, along with insufficient drainage, undoubtedly generates fever; and in Europe, for instance in Italy, irrigation has occasionally been abandoned locally on this account.

As regards epidemics of disease, the report shows very clearly how small-pox and cholera are each year influenced by season, their minimum prevalence always being in the cold weather; and how it is only occasionally—that is, once in three or four years—that they become widely epidemic. Fever, again, is not nearly so much influenced by season. Its ravages, in one form or other, last throughout the year, and epidemic fever is to be found in some districts in every year. No disease in India causes nearly so many deaths among natives. Thus in the years 1871-2, in the North-Western Provinces, fever caused seventeen times as many deaths as cholera, fourteen times as many as small-pox, and fully seven times as many as bowel-complaints. During the period included in this report, fever was on the increase in the North-Western Provinces (it is believed that there is an amendment in them in this respect in 1873), as it was in almost every part in India. Thus it is not only in the case of Lower Bengal, which has been devastated for nearly a decennial period by it, that this increased prevalence of fever is a subject demanding the full investigation of medical officers. The exact nature of the fever, or rather fevers (and many officers now run into the extreme of calling most fevers typhoid), and of the causes which produce it, are as yet imperfectly determined. The epidemic of dengue was very wide-spread and very intense. It was entirely new in the North-Western Provinces, and is believed to have been more fatal than is usually supposed.

Improved registration of deaths shows every year an increased rate of mortality in the native population. Still even the latest returns would make the average duration of human life longer in the North-Western Provinces than in England. There must, of course, be some fallacy in this, the most obvious source of which is the defective nature of the mortuary returns for children. J. MACPHERSON, M.D.

MISCELLANY.

THE YEAR'S BUSINESS IN DRUGS.—The trade of 1873, regarded especially from our readers' point of view, is characterised by features of great interest; and the trade in drugs and chemicals, as shown by the official returns, has been during the past annual period remarkably active. It will be useful if we shortly point out, statistically and otherwise, some of the most salient points in the year's business. Beginning with due alphabetical precision, we find that during 1873 the importation of alkali has given rise to a very active trade, as the amount imported was 95,336 cwts., a considerable increase as compared with the previous year. The sterling value of this importation annually is about 160,000*l.*, so that it will be seen it is a rather valuable branch of our import commerce. Another article, the import of which greatly increased last year, is Peruvian bark, the amount being 45,419 cwts. against 28,251 cwts., thus furnishing evidence as to the remarkable augmentation in the amount of this article received into the United Kingdom. The sterling value of Peruvian bark imported in 1873 reached the large sum of 445,184*l.* With regard to articles classified comprehensively in the returns as 'chemical manufactures and products, unenumerated,' we find that the value of these goods imported last year was 931,649*l.* This is a trade which does not appear to be liable to much fluctuation and vicissitude, but maintains the even tenour of its way, evenly, and without great change. Of late years the amount of the imports has not varied much, and therefore there is nothing special to comment upon in reference to them. The same remark also applies almost with equal force to another article to which we may allude—cochineal. Last year the imports amounted to 40,021 cwts. against 38,160 cwts. in the previous year, the computed value being, in 1873, 509,828*l.*, and in 1872, 494,541*l.* According to these figures there is no very noticeable increase in the importation of cochineal. When, however, we turn to the statistics representing the imports into this country of nitrate of soda we find a somewhat different state of things. The trade in this article appears to be steadily on the increase. The imports amounted last year to the large total of 2,393,204 cwts. as compared with 1,592,346 cwts. in the preceding year, thus indicating a very considerable increase in the trade of late. The value of these imports is already so great that probably they will amount in a little time, especially at the present rate of progress, to not less than 2,000,000*l.* sterling annually. Another article in which our readers are interested, and which shows material progress, is olive oil. The imports during the past year amounted to 35,145 tons against 23,996 tons in 1872; while the value in that year was 1,191,829*l.*, and 1,560,168*l.* in 1873. It will be perceived by these figures that we continue to import olive oil in greater quantities every year, and that, so active is the business generally, the aggregate value of the transactions in this commodity must be something immense. Palm oil, without increasing or decreasing materially, steadily maintains its normal position. The same remark may also be applied to the imports of saltpetre. These imports last year amounted to 331,517 cwts. against 335,672 cwts. in the previous twelve months, so that no fluctuation of any importance is apparent.

We turn next to the statistics of our export trade, and will shortly describe its chief features. As the articles are classified alphabetically, we come first to Peruvian bark, which was exported from the United Kingdom last year to the quantity of 29,289 cwts., and to the value of 344,265*l.* This is an increase over 1872.—The exports of cochineal, on the other hand, show a slight decrease, but nothing material, the amount last year being 19,980 cwts., and the value 264,219*l.* The exports of olive oil—always small—were last year somewhat greater than in 1872. The exact figures are—1873, quantity, 2,819 tons, value 138,753*l.*; 1872, 1,552 tons; and 1871, 2,660 tons. The exports of palm oil show a slight diminution in the total amount,

as does also saltpetre, the quantity exported last year being 15,103 cwts. against 29,619 cwts. in 1872. The exports of alkali, given under another head, increased last year, although, for the last few years, they have been very large. The amount exported from this to other countries in 1873 was 4,758,393 cwts. as compared with 4,453,068 cwts. in the previous year; the sterling value being, in 1873, 2,931,351*l.*, and, in 1872, 2,486,991*l.* The largest amount of this alkali, as many of our readers will be aware, goes to the United States, the quantity exported thither last year having been no less than 2,149,155 cwts. Germany takes the next largest quantity, and last year the amount exported to that country greatly increased. Next to Germany our best customer for alkali is Russia, then Holland, and then France. The manifold goods classed under the one heading of 'chemical products or preparations unenumerated' have not been exported more largely in 1873 than they have usually been of late years. In fact, there is no great fluctuation in this branch of the trade as will be seen by the following statistics of the exports in the three years referred to: 1873, 1,745,570*l.*; 1872, 1,863,634*l.*; and 1871, 1,588,763*l.* A steady total is thus maintained; and, indeed, it is gratifying to see that this business is carried on upon such sound principles that every year may be expected to bring round its accustomed amount of trade, without showing any of those extraordinary revulsions of panic which beset some sections of commerce, and which, when they unfortunately happen, cause no small inconvenience to those concerned, and disarrange the best laid plans.

Speaking generally with regard to the drug and chemical trade of the past year, there is no doubt that its main features have been satisfactory, and of such a character as to leave little cause for grumbling. Most of the articles connected with this branch of commerce, as shown in the official returns from which we have quoted, have progressed with great rapidity, and tend, in some degree, to confute the statements, or rather misstatements of those who make a great deal too much of the cry that our export commerce has of late materially diminished. The truth is that it has not increased during the last few months with that startling rapidity which astonished everybody some time ago, and which led the Prime Minister to speak so hopefully of those 'leaps and bounds' which characterised the commerce of this country. The exports and imports of drugs and chemicals generally have been equal to, in some cases more than, in 1872, that eventful year for British commercial interests, and with regard to the future there is every prospect of trade doing still better than in the past. What can we desire more?

THE WEST HADDON CASE.—Sir Robert Christison, Bart., Dr. Alfred Swaine Taylor, F.R.S., Dr. Wilks, F.R.S., and Dr. Moxon, of Guy's Hospital, have now, by their communications published in the *British Medical Journal*, shown that there is not, and never was, in their belief, a shadow of foundation for the statements of Mr. Rodgers, the chemical expert at the inquest, that a high temperature after death negatived the evidence that death had resulted from syncope due to the ascertained fatty degeneration of the heart; and that a high temperature after death justifies or leads to the conclusion that a volatile noxious substance (nature unknown), was administered immediately before death, and was the cause of death. Challenged publicly to adduce any scientific observed facts as a basis for these novel, pernicious, and unfounded assertions, Mr. Rodgers has failed to do so. Nevertheless, he must be aware that a witness who procures a verdict of 'death by poison,' from a country jury, and who finds that verdict followed by a fearful catastrophe, incurs a great moral responsibility, and owes to his country not less than to his profession, to the cause of justice and to the memory of the person inculpated, a frank statement of the grounds of his conviction. It is, of course, impossible that Mr. Rodgers should have made such statements without some ground; he has seen that they are regarded with surprise, incredulity, and indignation by the most experienced and distin-

guished members of his own class. A verdict has been recorded against Mrs. Waters by an inexperienced jury on his sworn evidence. Surely no responsible person should be willing to allow the verdict of error which has been recorded upon that evidence by the most authoritative judges to pass without explanation or defence. In shrinking from the task of justifying his sworn statements, Mr. Rodgers fails in a solemn and incumbent duty.

DR. PETER ALLEN, ST. MARY'S HOSPITAL, AND DR. J. J. PHILLIPS, OF GUY'S HOSPITAL.—The premature deaths of two distinguished members of the medical profession in London have taken place during the week. Dr. Peter Allen, aural surgeon of St. Mary's Hospital, died of typhoid fever; Dr. Phillips, assistant-physician accoucheur of Guy's Hospital, of apoplexy. Dr. Allen was in the prime of life, and had enjoyed excellent health till he was taken with this insidious fever. Some recent examinations of the basement of houses in Harley Street by Mr. Eassie, C.E., have shown the soil to be dangerously honeycombed with cesspools. Dr. Phillips was little over thirty, and stood on the threshold of a distinguished professional career, in which he was marked for success.

DR. SYMES THOMPSON, F.R.S.—A very painful impression has been produced by the conviction at a police-court during the week of a much-esteemed physician, Dr. E. Symes Thompson, for riding in a railway-carriage without first providing himself with a ticket. Dr. Thompson alleged, and alleges, hurry and pressure of time as the cause of the omission, and explains satisfactorily the circumstances which unfavourably impressed the magistrate. It should be stated that, when all the circumstances were known to the directors, they were desirous of withdrawing from the case. Dr. Symes Thompson has long been known as a man of peculiarly scrupulous character, and nice honour; and, as his many and distinguished friends believe him to be quite incapable of any kind of intentional wrong, it is contemplated to give some public expression to that opinion.

The Berlin medical papers of this week announce the sudden death of Max Schultze, the eminent professor of anatomy in the University of Bonn.

In Munich, on January 11, 12, and 13, there were 53 new cases of cholera, and 19 deaths.

ERRATUM.

At page 40, column 1, line 16 from bottom, for 'two cases,' read 'five cases.'

NOTICE.

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The London Medical Record.

WEDNESDAY, FEBRUARY 4, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BERNHARDT AND WESTPHAL ON SPINAL PARALYSIS IN CHILDREN AND IN ADULTS.*

Since J. von Heine published in 1840 his *Observations on Paralytic Conditions of the Lower Extremities and their Treatment*, a special form of paralysis in children, the subject has been well studied. Heine's own investigations led him to assert a preponderating lesion of the grey substance of the cord; and this is confirmed by Cornil, Prévost, Vulpian, Clarke, Charcot, Joffroy, and Damaschino. According to these authors, the anterior columns of the cord seem smaller, and there is an atrophy or entire disappearance of some of the groups of the largest ganglion-cells. Whether this atrophy be primary or depend on changes in the vessels, is doubtful. In 1869, Cumming published a case of 'extensive paralysis from morbid condition of the cord, probably congestion;' being the history of a man forty years old, who, after cold from sleeping in the wet, had difficulty in walking, and at last could only move the right shoulder, though sensibility was undiminished. Involuntary contractions in the extremities and pain supervened, but he gradually recovered so far as to be able to walk slowly. In 1872, Duchenne de Boulogne described the disease by the name of 'paralysie spéciale antérieure aigue de l'adulte, par atrophie des cellules antérieures de la moëlle.' The case by Dr. Bernhardt is given at full length, and well merits reading. An analysis of it shows a previously healthy man who, perhaps a little exhausted by diarrhoea, but still feeling well enough, took a violent cold. In from forty-eight to seventy-two hours a palsy of both extremities came on, without any lesion of the sensorium, without spasms or any signs of fever. In a few days the paralysis was absolute, and remained so for months, to give place afterwards to a gradual return of active movements, at first in single groups of muscles, later in others. The affected muscles rapidly lost their electrical excitability, at least for the induced current, and became wasted and extended. The sensibility of the skin remained intact; nor were the conditions of nutrition affected, for appetite, sleep, the excretions, &c., remained as usual, and, though he lay on his back for weeks, there were no bed-sores. The muscles of the eyes, tongue, head, and respiratory organs were never affected; but the only other movements of which he was capable were slight ones of the right thumb, and of the left fore-

finger and thumb, with power to roll the arm slightly inwards. At one time a gradual insinking of the interosseous spaces of the backs of both hands was noticed, especially in the right between the thumb and the index-finger, and this was next seen in the under part of both thighs. Then the thenar and hypothenar eminences became hollowed, and the skin wrinkled over them. Four weeks after the beginning of the disease, the strongest possible induced current excited only feeble contraction in the muscles of the thumb and little finger, and mere traces of contraction in the deltoid and biceps and quadratus femoris, but the constant current had very different effects.

On reviewing the symptoms, the likeness to the spinal paralysis of children is manifest; but of course it must be remembered that the reaction of a child's organism on the disease must be very different from that of an adult. It is as certain that, on the outbreak of the disease in children, fever and convulsions may be absent, as that they are generally present. Clearly, too, the atrophy of the affected limbs is not compensated in the adult as in children, by growing of the bones and joints, for the time of growth has already gone past. But in one, as in the other, there is at first a generally spread weakness, which after days or weeks localises itself in certain special muscular groups; in both classes the excitability of the affected muscles rapidly disappears, at least for the induced current; in both, the muscular atrophy causes deformities in separate limbs; and in both it is certain definite groups of muscles that are affected. In both, lesions of sensibility are absent, as also are bed-sores, and alterations in the excretions; but, whilst in adults the four extremities are nearly always affected, in children it is oftener seen to be a palsy of one limb, or of the upper extremity of one side, with the lower one of the other side. The prognosis in both classes is decidedly favourable to life; but an opinion as to the complete recovery or the severity of a particular case will depend on the *number* and *functions* of the affected groups. Perseverance in electrical treatment is the only thing to be recommended. It would seem that the pathological conditions in the two are identical, though opportunities for *post mortem* examination have been singularly rare. The French writers say that the disease in children is in the grey anterior columns of the cord, especially in the cervical and lumbar enlargements, which are the most altered, and in which the largest motor-trophic ganglion-cells are the seat of the chief changes. Duchenne, from the analogy of the symptoms, names the disease from a preserved identity in the pathological appearances. Gombault had an inspection where he found change in the anterior grey columns, and considerable atrophy of the large ganglion-cells, but only single nerve-tubes were without myelin and rich in nuclei. The muscles were beset with connective tissue, and the fibres which did remain were somewhat reduced in volume; often only empty sheaths of sarcolemma could be seen. The nerves to the muscles, and the nerve-trunks, contained isolated spots occupied by connective tissue, which had long usurped the place of nerve-tubes.

In considering the etiology, a prominent feature is the fact of taking cold. Must the muscular be considered the primary affection, and that of the grey substance in the anterior columns only consecutive, brought on by long disuse of the muscles? Apart from those discoveries which, denying a single

* On a Disease among Adults similar to the Spinal Paralysis of Children. By Dr. BERNHARDT, of Berlin. (*Archiv für Psychiatrie*, January, 1874.)

Observations and Investigations on the Diseases of the Central Nervous System. By Professor C. WESTPHAL, of Berlin.

atrophy of the ganglion-cells, see in the participation of the blood-vessels an indubitable sign of true inflammatory affection of the grey substance, it is difficult to conceive that certain muscles or nerves in a circumscribed limit should all at once be severely attacked, whilst others which are still more exposed to the cold air (as the neck- and face-muscles), should decidedly escape. The symptoms somewhat resemble those of acute general paralysis, but the latter lasts only a few days, death following very rapidly from implication of the respiratory organs.

With this paper should be read one in the same journal by Dr. Carl Westphal, on 'Myelitis occurring disseminated or in patches (*fleckweise*);' by which he intends to designate those diseases of the cord where the myelitic process is spread irregularly over a large extent, so that sections made at different heights show different diseased portions of white and grey substance, with here and there healthy parts intervening. This form (which is very little known, and whose etiology is obscure) is different from the one usually seen, where certain sharply defined parts (as the anterior or posterior columns, &c.) are affected continuously, it may be in their entire length. He gives two cases of varioloid, in the first of which, eleven days after the eruption and during the drying-up stage, paralysis of the bladder came on, on the twelfth day paralysis of the left, and on the thirteenth day of the right leg. There was found disseminated myelitis of the grey and white substances. In the second case, paraplegia came on a few days after the outbreak of the eruption, and here again disseminated myelitis of the grey and white substances, but especially of the latter, was found. It appears to Westphal that in some of the cases quoted by Damaschino, 'spinal paralysis of children,' a similar process has gone on in the cord as in the paralyses after acute febrile diseases in adults; and to prove this, he gives the results of two *post mortem* examinations made on children two years old, who were well marked instances of 'spinal paralysis.' Clinically, it would seem that many of the cases quoted as spinal infantile paralysis have in fact arisen at the close of well characterised febrile affections; thus, *e.g.* in Heine's first case, after convalescence from scarlatina, in his seventh case during the fever; and similar instances are given by West and Damaschino. The question arises whether these are truly 'infantile spinal palsy.' Laborde, in his work on *Paralyse Essentielle* (Paris, 1864) expresses himself very strongly against confounding such with the secondary palsies after acute febrile diseases; but he gives no good ground for it, and appears to have misunderstood Rilliet and Barthéz in some expressions which they used. Certainly, as regards the time of appearance of the paralysis after the fever, no difference between children and adults can be made out; nor again, have the intensity and duration of the fever anything to do with it; indeed it is curious how often in both the fever was mild and of short duration. Vulpius has often written on partial paralysis with atrophy of the affected muscles in adults after acute fevers; and, seeing that a similar pathological process has been found in a classical case of spinal infantile paralysis arising after an acute exanthem, by Damaschino, and by Westphal in adults after acute disease—the appearance being a diffused myelitis—there seems no ground for making any difference between the nature of the spinal complaint in children and in adults. Westphal was of opinion that the fact of the ganglion-cells participating in the lesion in the spinal

infantile complaint *might* give some ground for difference between this disease and that of adults, in whom opportunities for investigating are very rare; but an instance given by Gombault, in which he found the ganglion-cells affected, seems to prove that the pathological processes are the same in both. Westphal's paper is accompanied by two lithographic plates, showing beautifully the different amount of 'disseminated myelitis' in sections taken at different heights in the cord. T. C. SHAW, M.D.

CLINICAL SURGERY.

ON NECROSIS OF BONE. BY PROFESSOR HEINCKE, OF ERLANGEN.*

The frequency of this affection may be readily explained, according to Professor Heincke, by the fact that bone derives its blood-supply only from the vessels of the periosteum and the medulla, and that the vessels supplying the medulla first pass through bone. Any disturbance of the nutrition and of the circulation in the periosteum and marrow must thus exercise very great influence on the nutrition of bone. Necrosis would not be met with so frequently, if bone, like the soft parts, were capable of undergoing molecular degeneration. As this is not the case, many morbid processes which, in soft parts result in suppurative or granulo-fatty degeneration of the tissue-elements, lead in bone to necrosis. The anatomical differences between spongy and compact bone, such as the greater supply of anatomising blood-vessels in the former, and also the abundance and the regular distribution of the medulla, render it intelligible why necrosis occurs more frequently in the latter than in the former.

There are many causes which alter the nutrition of bone to such an extent as to give rise to necrosis.

In the first place, injuries of bone not unfrequently result in necrosis, the injured portion being killed either through separation from the rest of the bone, or through failure of the periosteum and the medulla to supply nutriment to the osseous tissue. Professor Heincke holds, however, that even completely detached osseous fragments do not always die, but that they sometimes form sound union with the callus thrown out at the seat of fracture. Severe contusion and concussion of bone without fracture cause laceration of the vessels passing from the periosteum to the bone and those supplying the marrow, and result in effusion of blood under the periosteum and sanguineous infiltration of portions of medulla. When these effusions are speedily absorbed, so that the periosteum becomes again applied to the bone and the circulation in the marrow is renewed, the bone continues to live; but when, on the other hand, the effused blood sets up suppurative, the periosteum remains detached, the medulla breaks down and is destroyed, and necrosis consequently results.

Necrosis is frequently caused by inflammation, acute or chronic, which causes persistent separation of the periosteum or degeneration of the medulla, or both these combined simultaneously. Acute osteomyelitis rarely terminates without necrosis, usually involving the greater part but never the whole of the affected bone. The whole of the diaphysis of a long bone is seldom necrosed, and it is an extremely rare

* Abstracted from *Volkmann's Sammlung Klinischer Vorträge*, no. 63.

event for both or even one of the epiphyses to die together with the shaft. Chronic inflammation resulting in necrosis frequently occurs in scrofulous, badly nourished, and anæmic children, and the exciting causes of such inflammation are, in most instances, chills and slight mechanical lesions. Constitutional syphilis often gives rise to chronic inflammation of bone and marrow; and finally, under the influence of phosphorus vapour, chronic periostitis and consequent necrosis may be produced in the jaws. Necrosis from acute inflammation may occur after injury, after a surgical operation involving a bone, after chilling, and during convalescence from continued fever or some acute exanthem. A very severe form of acute periostitis and osteo-myelitis is sometimes met with, in which several bones are simultaneously affected, the general disturbance being very great and giving rise to typhoid symptoms. This affection has some resemblance to acute rheumatism, especially as it is sometimes associated with endocarditis and pericarditis. It has been called articular typhus, osseous rheumatism, and by Roser pseudo-rheumatic inflammation of bone.

A third but not very frequent cause of necrosis is vascular plugging. In consequence of impairment or destruction of the circulation, primary coagulation may take place in the nutrient vessels of a bone; or the trunk or one of its larger branches may become plugged by an embolic clot. The latter is of rare occurrence. One case of undoubted embolism of an artery to bone after endocarditis has been recorded by Volkmann. Primary thromboses in the vessels of bone probably underlie, Professor Heincke thinks, those necroses which are sometimes observed in extremely debilitated subjects and in convalescents from typhoid. The coagulation is due to weakened heart's action and diminished blood-supply; it probably commences in the capillaries and small veins of the affected bone, and then rapidly extends on the one hand to the larger veins, and on the other to the arteries. The course of the necrosis in such a case is generally very rapid, the whole bone, or a considerable portion of it dying at once, and, in cases where death does not result, speedily becoming detached from the living parts.

The upper surface of a superficial sequestrum is usually quite smooth, and resembles the surface of a portion of macerated bone; but, in some cases of syphilitic necrosis and of necrosis of the jaws from the effects of phosphorus, the surface of the sequestrum is covered by osteophytic deposits, which in the former affections are delicate and like grains of sand, and in the latter form large rounded masses of bone. In those cases of osteophytic deposit, the death of bone has been preceded by an inflammatory process causing periostitic deposit in addition to osseous sclerosis. Putrefaction does not as a rule take place in sequestra, as the soft structures contained in the canals of bone and in the medullary centres commonly undergo purulent and caseous degeneration before the admission of air, and purulent and caseous deposits in a wound do not readily putrefy. In some conditions, however, putrefaction does extend from the ordinary secretion of a wound or ulcer to the ichorous and caseous masses filling the cavities of a portion of dead bone. This occurs most frequently in caseous sequestra, and in portions of bone detached in compound comminuted fracture. The parts immediately surrounding an unremoved sequestrum are pus and granulations; according to the amount of irritation, the sequestrum is surrounded

sometimes more by pus, at other times more by granulations. Pus does not exert any influence on dead bone, and a sequestrum may remain a long time surrounded by purulent fluid without undergoing any change. Granulations, on the other hand, cause wasting through pressure, and probably through the dissolvent action of the secreted fluid on the lime-salts of bone. The process of melting in masses of dead bone in contact with granulations unfortunately goes on so slowly, that no important results can thus be obtained. Through the gradual solution of osseous trabeculae lying between dilated pores, portions of sequestrum may wholly disappear, yet it seldom happens that any noteworthy diminution of a large sequestrum may be thus effected. Small sequestra may, under favourable circumstances, be thus destroyed by granulations, but sequestra of any considerable size cannot be removed by their action.

The proper time for the surgical removal of a sequestrum lies between the period of the complete detachment of the same from the living bone and that at which serious affections, such as Bright's disease and lardaceous degeneration of the abdominal viscera, make their appearance. The separation of a sequestrum from the living portions of bone does not, according to general experience, take a longer period than six months; hence the practical rule that, even in cases where the sequestrum is not movable, an attempt should be made to extract it if the necrosis commenced at least six months before. The author recommends that, where the sequestral capsule or case of new bone is very thick and its cavity very large, the whole of one wall of this capsule be removed. By this proceeding, the healing of the wound after extraction of the sequestrum is much accelerated.

CLINICAL MEDICINE.

ON THE TREATMENT OF DISEASES OF THE STOMACH. BY PROFESSOR W. O. LEUBE, OF JENA.*

After a few remarks on the importance of physiology in regard to diagnosis and treatment, Professor Leube said:—

The treatment of diseases of the stomach coincides in great part with the treatment of dyspepsia. (I must here expressly state, that I do not think it correct, in the present day, to separate dyspepsia from other diseases as a special disorder, and to treat it by itself. I rather understand the term as denoting only one of the aggregates of symptoms attending the most various diseases of the stomach.) In any case, dyspepsia is generally by far the most prominent of the symptoms which appear in the course of individual gastric affections—whether acute inflammation, ulcer, cancer, chronic catarrh, or simple dilatation, &c. The functional disorder is the manifestation of the structural changes; and it is the symptoms of dyspepsia which are generally first taken into consideration in the treatment of diseases of the stomach.

Dr. Leube then enumerated the symptoms indicating dyspepsia, and remarked that, however easy the diagnosis was, it was difficult in individual cases

* Extracts from a paper read before the fifth meeting of the Thuringian Medical Association at Muhlhausen. (Volkmann's *Sammlung Klinischen Vorträge*, no. 62.)

to find the right remedies. There is, he said, no specific for dyspepsia, like quinine for ague, or mercury for syphilis; each case must be analysed, to find out what form of dyspepsia is present, and what is its cause.

The two constituents of healthy gastric juice are, a free acid, and pepsin, the ferment which breaks up albuminous substances. Both of these are of equal importance in the process of digestion, and one cannot act without the other. Moreover, a certain proportion in the quantities of these constituents is necessary for effective digestion. The most favourable proportion is 1 to 4 parts of acid in 1,000 of gastric juice; but it is of less importance that the amount of pepsin should be constant. Albumen is dissolved more quickly, the richer the fluid is in pepsin; but a very small quantity of pepsin is capable of dissolving an unlimited quantity of fibrin, provided only that care be taken to ensure a constant supply of acid. The pepsin remains unchanged during the process of digestion of the albumen.

Dr. Leube then described the manner in which he proceeds in cases where he cannot otherwise arrive at a conclusion, to determine whether the dyspepsia depends on an excess or a deficiency of either of the constituents of the gastric juice.

I make the patient take, while fasting, about 25 grammes ($6\frac{1}{2}$ drachms) of Carlsbad salt, to carry downwards any contents that may be remaining in the stomach. After this, I make him eat at midday some dry cold roast veal with or without bread; and, an hour or two later, I withdraw a portion of the contents of the stomach by means of the stomach-tube, and ascertain by the smell and reaction how far the digestive process has advanced. I then filter the contents of the stomach which have been removed, and introduce into each of three flasks about 50 grammes of the filtrate, suspending in each an equally sized piece of boiled fibrin, and adding to the contents of one flask two drops of hydrochloric acid, and to those of another two drops of neutral solution of pepsin. The three flasks are then placed in a large vessel of water at a temperature of 35° to 40° Cent. (95° - 104° Fahr.). The amount of digestion which goes on in the contents of the flasks to which the acid and pepsin have been added, as compared with the flask to which nothing has been added, will show whether one or other of these materials produces a more rapid solution of the fibrin.

From the experiments which I have hitherto made, and from a consideration of what may possibly occur, I am led to the conclusion that, in most cases where there is a disturbance in the proportions of the constituents of the gastric juice, there is a deficient amount of acid.

As regards the pepsin, an abnormal increase is not, *a priori*, a very probable cause of dyspepsia, as, the amount of acid remaining the same, an increase of pepsin only accelerates digestion. And just as little can a diminished amount of pepsin have any other effect than a slight delay of the digestive process. As only the smallest quantity of pepsin is required for digestion, so long as there is a constant supply of acid, it depends only on the degree of secretion of acid whether the process of digestion is maintained.

Dr. Leube has not met with any case of dyspepsia in which the gastric contents, treated in the manner above described, dissolved fibrine rapidly, either without any addition or with the addition of pepsin; while the addition of acid caused the solution of the

fibrin within a period varying from twelve to twenty-four hours.

In such cases, then, the administration of acid is a therapeutic indication. It is not necessary to give it in a routine manner—a spoonful of an acid mixture every two hours; but the patient should take the medicine immediately before and after meals. I usually give eight drops of hydrochloric acid in half a wineglassful of water an hour after taking food, and, in some cases, repeat the dose four hours after meals, and I have always seen good results from this treatment. It is an interesting fact, that Manassëin,* in the experiments which he has performed on dogs under Hoppe's directions, has ascertained that a deficiency of acid is the cause of the disturbance of digestion both in fever and in acute anæmia. His researches have led him to the conclusion that, both in animals in a febrile state and in those in which acute anæmia has been induced by blood-letting, there is a change in the normal proportion of acid and pepsin, and that the addition of acid to the gastric juice exercises a greater influence in these than in healthy animals.

The last possible morbid quantitative change in the proportions of pepsin and acid, is an excessive formation of acid. However wide-spread may be the belief that this anomaly is of very common occurrence in diseases of the stomach, I must express my doubt, whether there are many cases in which an abnormally great formation of acid is the cause of dyspepsia. I do not deny that the vomited matters in many gastric diseases have an intensely sour smell and acid reaction; but this by no means signifies that there has really been too much acid formed for the performance of digestion. An intensely sour smell is no evidence of acid reaction. In some cases of dilatation of the stomach, the fluid which I have removed from the organ has had a disgustingly sour smell, but nevertheless its reaction has been neutral. Moreover, even when the contents of the stomach have a distinct acid reaction, the question is not yet answered whether there is really too much acid for digestion, as long as we do not know what the acid is which produces the reaction; and, again, there is a very marked difference in the results which the addition of one or another acid to pepsine produces on the ingesta. It has long been known that, in cases of morbid fermentation in the stomach, sometimes lactic acid, sometimes butyric acid, sometimes even acetic acid, may be present, and render the gastric contents strongly acid. Nevertheless, none of these newly formed acids, perhaps with the exception of lactic acid, can effectively replace the hydrochloric acid in the gastric juice. For, even though these acids, like all others, are capable of forming digestive components with pepsin, yet the combination always has a very feeble digestive power; and regarding acetic acid especially, it has been ascertained that ten times as much of it as of hydrochloric acid is required to produce energetic digestion.

Dr. Leube has found that, in cases where there has been excessive acidity of the contents of the stomach, which has contained undigested food after several hours, the addition of slightly alkalisied pepsin did not increase the digestive property of the fluid.

He believes that, in the treatment of gastric diseases, hydrochloric acid is, in most cases, of more

* *Virchow's Archiv*, vol. iv, and *Centralblatt für die Medicinischen Wissenschaften*, 1871.

use than pepsin, from which, in modern times, much has been expected; but that the administration of pepsin together with the acid is indicated in those cases in which the acid alone fails to produce the desired result. According to Panum's latest researches, the most efficient preparation is the essence of pepsin, prepared according to Liebreich's formula by Schering, of Berlin; and next to this comes 'French pepsin,' a mixture of pepsin, peptones, and lactic acid.

An abundant secretion of mucus in the stomach interferes with the normal production of acid, and gives rise to abnormal products of digestion. But the assumption is not well founded, that to the presence of the mucus is to be attributed the fermentation which results in the formation of acetic, butyric, lactic, and carbonic acids, and hydrogen. If the quantity of these abnormal products of fermentation be too great, one can only administer carbonate of soda or some other antacid. This is the more indicated, as the alkali not only neutralises the acids, but also, as soon as it is in excess, promotes normal secretion from the walls of the stomach.

A change in the quantity of the gastric juice may be a cause of dyspepsia, although its constituents are in normal proportion. Persons suffering from this form of dyspepsia endeavour to rouse the torpid mucous membrane of the stomach to action by the use of strong condiments or other stimulants. Direct evidence of such a pathological condition is afforded in the following way. If, in a healthy individual, the tube of the stomach-pump be introduced during fasting, the mechanical irritation produced by it, and that of the cold water injected, are sufficient to produce a slight secretion from the mucous membrane, and the fluid which escapes through the tube has a slightly acid reaction. But when the digestive power is torpid, this mild irritation is no longer capable of exciting the glands to secrete. I know a man, the subject of slight digestive disturbance, from whose stomach I can never obtain anything but a neutral fluid; and in the case of a lady whom I have lately had under treatment for dilatation of the stomach, the fluid obtained by washing out the organ has always had a neutral reaction. Such cases of total defect of secretion of gastric juice are treated by rhubarb, ipecacuanha, &c. I am of opinion, that, in the treatment of this torpor of the mucous membrane of the stomach, we should trust less to the action of these medicines than to the gradual weaning of the stomach from any vehement stimulants. To carry this out, requires much patience on the part of both physician and patient. In cases where quicker aid is required, we may prescribe remedies which have been shown by physiological experiment to be capable of producing an increased secretion of gastric juice. Such remedies we possess in ether, alcohol, cold water, the alkalies, very probably in bitters; and here also benefit is to be expected from the use of the alkaline waters of Vichy, Bilin, &c. As adjuvants, ice and bitters are useful; the action of these, as I have recently shown, is indirect; they probably only produce an increased secretion of saliva, which, being swallowed, acts as a powerful stimulant on the gastric mucous membrane.

Dr. Leube then proceeded to speak of the absorption of peptones. Experiments on artificial digestion have shown that the process is interrupted, unless the peptones be removed by dialysis; and if the absorbent power of the gastric mucous membrane be impaired, the escape of the peptones from the sto-

mach is interrupted, and disturbances of digestion are the result. In this way is explained the observation of Ranke, that, of equal and similar quantities of meat, more was digested when it was used in small portions, than when the whole was introduced into the body at a single meal. Thus also are explained various clinical observations. Starting from the assumption that deficient absorption of peptones may be a cause of dyspepsia, we may readily attribute a portion of the disturbances in chronic gastric catarrh to a diminution in the absorbent power of the mucous membrane. Especially clear, in my opinion, is the action of this defective absorbent power in dilatation of the stomach. When the absorption of peptones by the mucous membrane is interrupted, the products of digestion along with the undigested food accumulate in the stomach, and lead to its gradual distension. It is self-evident that such an accumulation is favoured in cases where there is a mechanical impediment—such as a stricture following the cicatrization of an ulcer—to the passage of the gastric contents through the pylorus. But the whole of the symptoms in dilatation cannot be ascribed to narrowing in the neighbourhood of the pylorus, because the degree of distension of the organ found after death is not unfrequently much greater than can be accounted for by the pyloric constriction; and this state of matters can be easily brought into harmony with the symptoms during life, if the diminished absorbent power of the mucous membrane be also taken into account. The last named functional disturbance explains in a simple way how it is that, in cases of dilatation of the stomach, the organ is again enabled, after the use of the stomach-pump, to propel the food through the narrowed pyloric orifice. We have noticed in cases of this kind that, after several removals of the accumulated and unabsorbed collections of fluid, often in enormous quantities, the stomach again began to absorb. In this way, a portion of the burden thrown on the muscular structure of the stomach is removed, its work becomes easier, and it gradually regains the power of propelling onwards the contents. That the defective absorption of peptones must interfere with nutrition is evident: most practitioners must have met with cases of emaciation originating in dilatation of the stomach.

The actual existence of such arrest of absorption, may be demonstrated in a similar way to that employed in determining the existence of impaired digestion from torpidity.

A patient, sent to me by my honoured colleague Pfeiffer, had suffered during several years from gastric oppression, eructation, vomiting of large masses of the contents of the stomach, and considerable emaciation. When he lay on his side, the fluid in the stomach fell over to the same side with a loud noise, and a squashy fluctuation could be perceived on palpation. The patient himself felt as if the fluid simply fell down when he drank. The distance to which a tube could be passed, eight centimètres beyond the xiphoid process—removed all doubt that the case was one of extensive dilatation of the stomach. In the course of the treatment, I used only a solution of meat containing peptones, and allowed the patient to eat nothing else for twenty-four hours. On removing the contents of the stomach at the end of this time, the amount of peptones was found nearly unchanged, indicating that very little if any had been absorbed.

Unfortunately, we possess no remedies by the use of which we may hope to excite the absorbent power

of the stomach even in a moderate degree; but, by a more accurate diagnosis, we gain this—that we are saved from giving medicines needlessly. In such cases, I find the most rational treatment to consist in regularly washing out the stomach. For this purpose, I have for several years used, instead of Kussmaul's stomach-pump, a simple siphon. By using this latter instrument, we avoid the risk of sucking up the mucous membrane and lacerating it—an accident of which Ziemssen has lately published an example. Washing out the stomach has been found an excellent remedy in the practice of others as well as in my own. I assure you, indeed, that without the stomach-tube I could not treat this disease, which is very common in Thuringia. I have often convinced myself that all medicines, all dietic regulations, all clinical and physiological calculations, were of no use in such cases, but that the employment of the tube at once changed the aspect of the case for the better.

Along with the regular washing out of the stomach, a diet is to be ordered in which the quantity of fluid is extremely limited. I allow my patients to take small pieces of ice or of fruit-ices, and advise them always to take food only in small quantities. In this way we may soonest expect the stomach to recommence the absorption of small quantities of peptone. This treatment may be assisted by the application of hot poultices to the epigastrium, which, when applied to other parts of the body, are found to be the best means of improving the absorbent action in deeply lying organs, as in chronic peritonitis and pleurisy. It is also advisable to suspend the action of the stomach from time to time, and to give rest to the organ long overburdened with labour; and this is best attained by the use of meat and pancreas clysters. That in many cases hydrochloric acid also is useful, has already been pointed out.

Having tested this last-named method of treatment on patients, I am well aware that it does not afford the means of directly and permanently restoring the absorbent power of the stomach. As long as our knowledge of the process of absorption, and especially of its preliminaries, is limited, so long we can certainly scarcely dare to hope to find the panacea for these conditions.

We must now examine the changes which take place in the function of the muscular coat of the stomach. Besides propelling the chyme from the stomach, the muscular contractions very probably bring it into intimate contact with the mucous membrane, so that it becomes impregnated with the gastric juice; further, they favour the formation and absorption of peptones. If the portions of food remain at rest in the stomach, the peptones are accumulated where they are formed, at the periphery of the masses of food, and the further peptonisation of the albuminous substances in the food is prevented.

The movements of the stomach favour the solution of digestible substances, and also promote absorption. As in other parts of the body, so also in the stomach, muscular contraction is a powerful factor in the propulsion of lymph and of venous blood, and consequently in the maintenance of absorption.

Any impediment to the activity of this so important mechanical aid to gastric digestion, must interrupt the process and lead to dyspepsia. In his well-known work on the use of the stomach-pump, Kussmaul has directed due attention to the behaviour of the muscular tissue in dilatation of the stomach,

and has shown the existence of fatty and colloid degeneration of the muscle-cells in severe forms of the disorder. But simple weakness of the muscular structure, such as may be met with in chlorotic and in aged persons, or serous infiltration, such as may occur in Bright's disease, in disease of the lungs or heart, or even in catarrh of the mucous membrane, is sufficient to interfere with the important aid which the process of digestion receives from the muscular contraction. Dr. Leube says that he has used electricity as a remedy, but his observations are as yet too few to allow more than the expression of hopes and hypotheses. I only know, he says, that in many cases the current has a good effect; and that there is no physiological reason why it should not act on the muscular coat of the stomach through the abdominal walls.

It is possible that certain forms of dyspepsia are due to nervous influence. At least, it is known that in cases of hypochondriasis, hysteria, diseases of the sexual organs, neuralgia, &c., dyspepsia occurs, the genesis of which must be for the present attributed to reflex influence. But, as we know little or nothing of the course of the nerves which regulate secretion, the existence of 'nervous dyspepsia' is at most doubtful; and, at the bedside, we should avoid as much as possible referring this or that form of dyspepsia to the nervous system.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

THIN ON THE STRUCTURE OF THE TACTILE CORPUSCLES.—Dr. Thin (*Journal of Anatomy*, December, 1873), says that the examination of fresh skin after treating it by chloride of gold, osmic acid, and carmine, and acetic acid, shows that there are two kinds of tactile corpuscles, single and compound; the greater number belong to the latter category. A vertical section through the meridian of a tactile corpuscle shows either a simple more or less rounded body enclosed in a capsule, or two or more such capsulated bodies arranged in a row parallel to the vertical axis of the papilla, and enclosed in a common oblong capsule, the former representing a single, the latter a compound corpuscle. Compound corpuscles may again be divided into twins, consisting of two, and triplets, consisting of three single corpuscles; each of these individuals may be termed a member of the corpuscle. The space which separates the members of a compound corpuscle varies in breadth, and is only well marked in osmic acid preparations.

Each single corpuscle and each member of a compound corpuscle is penetrated invariably only by one medullated nerve-fibre; before piercing the capsule it describes a curve or a complete spiral, or forms a loop, or simply follows a straight course. If the corpuscle be single, the nerve penetrates at once into its interior after having pierced the capsule. If it be compound, the nerve, having penetrated the capsule, either immediately enters the member opposite its point of entry, or takes an upward course within the common capsule towards the member to which it is destined. In this course it follows no fixed rule, sometimes running parallel to the long axis of the corpuscle, sometimes crossing it once or even twice transversely. When the nerve has entered the substance of the corpuscle, it penetrates

to a certain depth either in a straight line or in a curve, but retains still its medulla.

Thin denies the alleged division of the medullated nerve in the tactile corpuscle.

The capsule of the tactile corpuscle consists of a circular layer of elastic tissue formed by the anastomosing processes of cells.

In teased gold and acetic acid and carmine preparations, it is seen that the well-known transverse elements of the tactile corpuscle are the nuclei of oblong cells, which anastomose with each other by means of processes of elastic tissue fibres. This dense network of cells and elastic fibres represents, in fact, the greater part of the substance of which the tactile corpuscle is composed. The network of elastic tissue in the corpuscle, and the cells connected with it, in no way, communicate with the medullated nerve-fibres.

The division of the papillæ of the skin into vascular and nervous is not borne out by the observations of the author; for in the majority of so-called nerve-papillæ there are, beside the tactile corpuscle, also one or more capillary blood-vessels.

MARTIN ON THE STRUCTURE OF THE OLFACTORY MUCOUS MEMBRANE.—Dr. H. N. Martin (*Journal of Anatomy and Physiology*, December 1873) confirms the well-known assertions of Max Schultze, that the epithelium covering the olfactory mucous membrane consists of two kinds of cells, viz., true epithelial and olfactory or sensory cells, which in anatomical respects are quite different. The correctness of these assertions had been questioned by Exner, who maintained that both these kinds of cells gradually shade off into one another.

In the newt, these two kinds of cells are very distinct. In a teased preparation of the olfactory membrane prepared with Müller's fluid, it can be seen that the epithelium consists of groups, each of which is formed of a central true epithelial cell with a number of olfactory cells grouped around it. In agreement with Max Schultze, Dr. Martin describes the true epithelial cells as being possessed of an oblong nucleus, whereas the olfactory cells have a spherical nucleus. In agreement with Exner, Dr. Martin describes the central process of the true epithelial cells as being generally branched. The central process of the olfactory cells is thinner than their peripheral process; it exhibits varicose enlargements, and does not divide. Dr. Martin has not been able to find cilia on the peripheral process of the true epithelial cells, as described by Exner. In the frog the two kinds of cells are not so readily distinguished as in the newt, the nucleus of both being oval, and the central processes of the true epithelial cells being fewer and less branched, and finally the peripheral processes being not relatively so thick compared with the corresponding processes of the olfactory cells.

In the dog, also, the two forms of cells are quite distinct, although both differ from those of the newt. In the true epithelial cells the nucleus is smaller and rounder than in those in the newt; the central process is comparatively thick and has little angular prominences here and there upon it. It is always single, and never branched until towards its deeper end, where it swells out into a large knot; from this a number of short thick processes arise, whose general direction is parallel to the surface of the mucous membrane, and which join those of neighbouring cells so as to form an irregular network with

small meshes. Each process contains just above its terminal enlargement a number of granules, which stain very deeply with osmic acid.

The olfactory cells are proportionately less numerous than in the newt, and their central processes are finer; their nuclei are oval and rather smaller than those of the true epithelial cells.

E. KLEIN, M.D.

KOCH ON THE CHANGES WHICH CERTAIN MECHANICAL AND CHEMICAL IRRITANTS PRODUCE IN THE PULMONARY PARENCHYMA.—W. Koch (*Langenbeck's Archiv für Klinische Chirurgie*, vol. xv.) reports experiments conducted with all necessary precautions, in which the lungs of animals were subjected for a varying length of time to irritations produced either by the introduction of an acupuncture needle, or by the injection of solutions of iodine varying in strength from 1 in 120 to 1 in 20. The results have always been the same. The animals did not evince any signs of pain or of other general disturbance; only in a very few instances, in which the solution of iodine was very strong, the parenchymatous injection was followed by a short cough. There was no increase in temperature or in the frequency of respiration. On *post mortem* examination, it was found that the irritated pulmonary parenchyma was converted into connective tissue.

The present experiments allow the conclusion that it is possible to convert pulmonary into connective tissue by means of parenchymatous injections of iodine, without producing constitutional disturbance of any kind.

I. B. BERKART, M.D.

KOHLER ON LOCAL ANÆSTHESIA FROM SAPONIN.—The *Berliner Klinische Wochenschrift* for July 6, 1873 (no. 27), contains a review of a monogram by Dr. Köhler, entitled 'Die lokale Anästhesie durch Saponin: experimental-pharmakologische Studien,' which offers several points of interest to both medical and surgical readers. This work is the outcome of very numerous experiments made on frogs, dogs and rabbits, with a view of determining the physiological effects of this substance. Pelikan was the first to discover its local anæsthetic effects, and Köhler has not only confirmed his statements, but brought out new and interesting facts. Saponin, or struthin, variously called githagin, quillajin, senegin, and monesin, is a glucoside, and occurs in many plants of the natural orders of the Silenæ (*e.g.* *Saponaria officinalis*) the Polygalacæ (*e.g.* *Polygala senega*) of the Spireæ (Rosacæ) (*e.g.* *Quillaja saponaria*) and the Sapotacæ (Cortex monesinæ); it is an amorphous white powder, with neutral reaction and sweetish taste; it is soluble in water, forming a foaming fluid like soap-suds. The experiments made on it proved its local effects, as well as those on the muscles and nerves of the extremities by subcutaneous injections, on the exposed hearts of frogs, on the intestines, and on the nervous centres by direct application to these organs; then the general effects from injections into the jugular veins; and lastly, the symptoms produced by its introduction into the stomach. The most important local effects are as follows. Five minutes after the application of a few drops of a concentrated solution, there occur perfect suspension of the reflex irritability of the part selected, and paralyses of both motor and sensory nerve-filaments. Shortly afterwards, the muscles of the part lose their power of responding to chemical, mechanical, or electric

irritants; and this may occur somewhat independently of the nerves. The nerve-trunks, and afterwards the nervous-centres, do not become affected till larger quantities of the solution are applied, and then probably by absorption, as the effects become general. The capillaries, at the spot selected for injection, become greatly contracted, and so do the larger vessels, such as the vena cava and aorta, when the saponin is applied directly to them. When it is applied directly to the heart, the beats of this organ gradually become less frequent, and then cease altogether. This effect does not depend upon irritation of the terminal branches of the vagi, but on paralysis of the accelerator nerves (sympathetic), which thus raises the 'tonus' of the vagus-filaments. Finally, paralysis of the cardiac ganglia themselves (*i.e.* of those imbedded in the muscles of the heart) ensues. In a like manner, direct application of the solution to the abdominal organs first paralyses their muscles and then their nerves. Local application to the nervous centres induces, at last, complete paralysis of these organs. This spreads peripherally from the spinal cord; and, continuing to affect the medulla oblongata and the cerebrum, produces asphyxia (stoppage of respiration), deep coma, and dilatation of the pupils. The series of experiments made by injecting saponin into the vena cava of warm-blooded animals produced these effects: diminution of blood-pressure, succeeding a slight temporary increase of it; reduction of temperature and of the frequency of both respirations and cardiac contractions. The effects on respiration and upon blood-pressure are produced through the nervous centre for these functions. The spinal cord and the peripheral muscles and nerves are not paralysed by these injections into the veins. Lastly, when saponin is introduced into the stomach, blood-pressure is reduced, and pulse, respiration and temperature, all sink, though slowly; paralyses of the extremities (as in the injections into the veins also) does not occur in this case. No alteration in either the quantity or quality of the excreta have been observed. Clinical practice only can decide whether saponin may play a great part in surgery as a local anaesthetic—the experimenters believe that to be probable—meanwhile the physiological effects (on the heart, and respiration, &c.) deserve further study, as it is very possible that larger doses may be safely given to human beings than were tolerated by any of the animals experimented on.

W. BATHURST WOODMAN, M.D.

MEDICINE.

ROSENSTEIN AND SÄNGER ON HYDATIDS OF THE SPLEEN.—The *Berliner Klinische Wochenschrift*, of May 19, 1873 (no. 20), contains a communication from Professors Rosenstein and Säger, of a case of recovery from echinococci of the spleen. As such cases are very rare, we abstract the following particulars. Mrs. K—, from Friesland, aged thirty-seven, had enjoyed good health except from occasional attacks of intermittent fever. Married at twenty-one, she had had six children, and had once aborted. Shortly before the last confinement, two and a-half years ago, she first felt pain in the left side, which gradually increased in severity, and after the confinement never entirely ceased. For about a year she noticed a swelling in the seat of the pain, which gradually increased up to the

day of her reception into the hospital, the pain increasing also.

Her state on January 2 was as follows. She was well built, fairly nourished, but pale and anæmic. The lungs, liver, and heart, appeared healthy. Her abdomen was unsymmetrical, and the left side was specially distended. Splenic dulness began at the ninth rib, and merged into the obscure percussion-note of a tumour which extended under the left border of the ribs, and gave rise to unsymmetrical distension of the belly. To the right and below, the outlines of the tumour could be made out by inspection; on the right it was bounded by a convex line, beginning at the xiphoid cartilage, cutting the linea alba, and reaching its greatest distance from this, equal to about 8 centimètres (a little more than 3 inches). Below, the boundary line ran more irregularly in an arched line which reached 7 centimètres below the navel (a little less than 3 inches). Fluctuation was very distinct. Manipulation was painful, but the skin was not reddened. The tumour was not movable, and was not affected by the respiratory movements. On the right border, the dull percussion-note passed at once into a clear tympanic tone. Her health was only disturbed by the pain. All her functions were fairly performed. The form and situation of the tumour suggested hydronephrosis; but the unusually clear fluctuation and its relations to the bowels, which did not lie in front but to one side of it, and the fact that the lumbar region and the left side of the body were never abnormally distended, at once negated this. Nor were the renal functions ever disturbed. A splenic tumour was diagnosed, although it was unaffected by respiration and no notch could be felt. Puncture with a grooved needle gave exit to a clear watery fluid, which had a specific gravity of 1.007, but gave evidence of albumen both by boiling and by nitric acid. The search for inosite and succinic acid, and for morphological elements, was prevented by an accident. After puncture, the tumour was lost both to sight and feeling. The percussion-note became tympanitic over the tumour, and splenic dulness reached one finger's breadth below the last ribs. But, after a few days, the tumour filled again. The pain became so severe as considerably to accelerate respiration. On January 13 the swelling had attained a length of 17 centimètres (6.6 inches), and a breadth of 16 centimètres (6.25 inches), and on the 18th of that month 150 cubic centimètres of purulent fluid (5 ounces nearly) were removed by puncture with fresh relief to the symptoms, though she had slight febrile disturbance of an intermittent type. The cyst filled again, and 600 cubic centimètres (nearly 1 pint English) of purulent fluid were then withdrawn, the length of the tumour having reached 30 centimètres (nearly 12 inches). As no hooklets could be discovered, nor any other specialities in the purulent fluid, the diagnosis could only assert that there was a cyst connected with the spleen.

As her pain became greatly increased, a radical operation was decided upon. On March 17, an incision 12 centimètres (between 4 and 5 inches) in length was made obliquely from the left border of the ribs towards the navel, and the muscles were divided on a director. There were adhesions between the transversalis fascia, the peritoneum, and the tumour. As the extent of these adhesions was not evident, it was thought advisable to secure the sides of the cyst to the margins of the opening by

ligatures. When this was done, a second incision was made at right angles to the former, and then a smooth-walled cyst could be felt in the interior of the cavity, and, by means of forceps and fingers combined, it was drawn out. The wound was treated with carbolised charpie, and in three weeks was perfectly healed. The cyst which was extracted consisted of an outer laminated wall of its own, the single layers of which could be separated by the nail; perfectly smooth on the outside, and coarsely granular, with a brownish-yellow tint internally, and of jelly-like consistence. In this were found some small bladders, varying from the size of a pea to that of a hazel-nut, which, under the microscope, showed a similar laminated structure to the outer wall of the mother-cyst. No scolices nor any of their elements could be detected. It was, however, evident that the cyst was a sterile echinococcus, the so-called acephalocyst of Laennec.

The authors point out that the case is peculiar in several respects. 1. There was an isolated echinococcus of the spleen. Davaine gives an analysis of 166 cases in the liver, but gives no details of one in the spleen. Förster gives 8 cases, viz., those of Günsburg, Andral, Cruveilhier (2 cases), Albers, Boehdahlen, Leutner, and Duplay. In all, except Duplay's, the splenic hydatid was first found at the necropsy, and (unless perhaps in one of Cruveilhier's cases) there were also hydatids of the liver. In Legroux's case, which ended fatally under treatment by Récamier's method, the tumour hardly belonged to the spleen. In the case narrated there were no signs of liver-disease. 2. The extreme painfulness of the tumour differed from the common history of liver-hydatids. The patient could not bear to move, and drew only shallow breaths. This does not agree with Canstatt's remark:—'The same remarks which apply to similar formations in the liver may be applied to acephalocysts and echinococcus-cysts in the spleen,' a remark which is copied into many text-books. Even Davaine says: 'Their pathological effects, if we except the phenomena resulting from compression or ulceration of the biliary passages, are analogous to those produced by cysts of the liver.' 3. The presence of albumen in notable quantity in the contents of the cysts at the first tapping is remarkable. For the absence of this, ever since Redi first pointed out that it was absent in hydatid fluid, and Récamier insisted on the importance of this negative symptom, has been made a diagnostic mark, as regards hydatids of the liver. In this case, the albumen and the want of structural elements (afterwards explained by the sterility of the echinococcus) long made the diagnosis doubtful. In future cases of splenic hydatids, these points would be worth investigating.

[The reporter has only met with one case of hydatids in the spleen, except where other organs were implicated, in a large number of *post mortem* examinations witnessed by him. He has, however, seen several cases of hydatid tumours where the great pain felt by the patients gave rise to the suspicion of malignant disease. In one or two of these, the pain, and perhaps pressure-effects, had also induced great emaciation. As regards the fluid from hydatid cysts, the reporter, from the examination of numerous specimens, is able to affirm that it is not at all uncommon to find traces of albumen in the fluid, whilst it is very rare to find quantities such as are found in serous effusions. The specific gravity varies from 1.005 to 1.010 or 1.012, hardly ever more, if there has been no suppuration; and there is always

a large quantity (relatively to the specific gravity and saline constituents) of chlorides, chiefly of sodium and potassium.—*Rep.*]

SEGUIN ON PHYSIOLOGICAL THERMOMETRY.—Under the title of *Thermomètres Physiologiques et Thermométrie Mathématique, leur application à la Médecine, à la Chirurgie, à l'Éducation* (Paris: J. B. Baillière; London: L. P. Casella), Dr. Edouard Seguin reprints in a condensed form, from his abridgment of Wunderlich's Thermometry, his former proposal to graduate medical (or, as he calls them, physiological) thermometers on a new and arbitrary scale, as under. He makes 37° Centigrade (or 98.6°) his zero, normal or line of health.

| | New Degrees. | Fahr. equivalents. | Remarks. |
|-----------------------|----------------|----------------------|--------------------------------------|
| Degrees above normal. | 7° | 111.2° | No recovery certified. |
| | 6° | 109.4° | Almost always mortal. |
| | 5° | 107.6° | Often fatal. |
| | 4° | 105.8° | Intense fever. |
| | 3° | 104° | Considerable fever. |
| | 2.5° | 103.1° | Moderate fever. |
| | 1.5° | 101.3° | Slight fever. |
| Zero | 0 | 98.6° | Normal line of health. |
| Degrees below normal. | 1.5° | 97.7° | Sub-normal. |
| | 1° | 96.8° | Depression. |
| | 2° | 95° | Collapse imminent. |
| | 2° to 3° | 95° to 93.2° | Algide collapse. |
| | 4° to 5° | 91.4° to 89.6° | No recovery known except in cholera. |

This graduation is very ingenious, but we must deprecate the introduction into the sick room of any instrument with such alarming statements on its stem; and we cannot help demurring to some of the statements themselves, for in malarious fevers and sunstroke there have been recoveries from very high temperatures, whilst exceedingly low ones have been met with and recovered from in cases of intoxication, as well as similar temperatures in cholera. This, however, does not affect the principle of the graduation; and it is to this we chiefly object, because, now that the centigrade scale is so largely employed by chemists and physicists, and even by engineers and manufacturers, it must surely be a retrograde step to introduce into medicine a new scale which would still further disserve it from the collateral sciences. Dr. Seguin reproduces from his other work his pet 'surface thermometers,' which are little to be relied upon, especially if held with a [?] warm hand upon any part. The 'clinical tables' drawn up by Dr. Seguin are as excellent as the surface thermometers and new scale are faulty, and there is no doubt that intelligent nurses, whether private persons or professionals, furnished with such tables, might greatly aid the doctor. Our own experience, however, is that it takes a great deal of training before the majority of even medical students can be trusted to fill in such tables. For the use of students who have been so trained, and for practitioners themselves, such records are invaluable; though for the purpose of comparison of cases the graphic method, which is so distasteful to Dr. Seguin, is far easier to apprehend, and to make others see with the same eyes as we ourselves do. These criticisms are not made in any unfriendly spirit towards Dr. Seguin, who has perhaps done more than any other of Wunderlich's pupils to advance medical thermometry, and is well known both in England and America for his works on Idiocy and the modes of teaching deaf-mutes. His little pamphlet, whatever its merits in other respects, would be well worth the price (only half a franc) if only for the

table of equivalents of thermometric scales which forms its appendix.

W. BATHURST WOODMAN, M.D.

DISEASES OF CHILDREN.

TARUFFI ON CONGENITAL CEREBRAL HERNIA. Professor Taruffi, in an article on this subject in the *Revista Clinica di Bologna*, sums up in the following conclusions (*Gazzetta Medica Italiana-Lombardia*, October 25.)

1. Congenital cranial hernia occurs in children in whom the bones of the vault of the skull are relatively well-developed, as well as in those in which they have remained in great part membranous; as may be the case in infants in whom the skull, though complete, has remained small and contracted.
2. In all these cases, the hernia takes place both through the fontanelles and sutures, and also through the bones of the vault of the skull or the base, but more frequently in the middle line of the head, especially in the occipital region, than in any other part.
3. The frequency of occipital hernia depends either on the position of the head in the uterus, or on the direction in which the intracranial distending cause operates.
4. In completely formed skulls, herniæ are formed either of the meninges alone, or also of the cerebrum, which in many cases is dropsical. In the membranous skull the hernia consists of cerebrum only, which is rarely dropsical.
5. Meningeal herniæ consist of serous accumulations in the dura mater. It is probable, however, that some have their origin in circumscribed subarachnoid dropsy.
6. The etiology of purely cerebral herniæ is very obscure. In some cases, however, either an anomaly in the form of the brain (general or partial hypertrophy, or malformation) or synostosis of the parts of the sphenoid bone, has been recognised. With encephalocele is sometimes associated meningocele, which may be considered as a result of the incarceration of the hernial sac.
7. Herniæ, with dropsy of the ventricles, are due to the latter as their cause; it may be either general or partial. General dropsy of the ventricles gives rise to hydro-encephalocele and not to macrocephalus, when the bones are not divaricated, and are not thinned in proportion to the increase of the size of the brain.

A. HENRY, M.D.

EHRENDORFER ON THE USE OF NESTLÉ'S CHILDREN'S FOOD.—Dr. Felix Ehrendorfer (*Fahr-buch für Kinderheilkunde*, vol. vii. p. 78), says that many attempts have been made to find a substitute for the mother's milk; these have been the more necessary on account of the adulteration of cow's milk in large towns. To these endeavours we owe Liebig's malt food, Löfflund's food, also the condensed milk of Cham in Switzerland and of Kempen in Bavaria, and lastly, Nestlé's children's food. The composition of Nestlé's food is a secret; Ehrendorfer believes it to be made up of wheaten flour, condensed milk, yolk of egg, and sugar. The flour is converted into dextrin by overheated steam at a pressure of a hundred atmospheres. Chemically, it consists of 40 per cent. of sugar and milk sugar, 5 per cent. of fat, 15 per cent. of protein matter, 30 per cent. of dextrin, and starch. One table-spoonful (one ounce) of the food is rubbed up with six table-spoonfuls (3 ounces) of water, and the mixture is boiled for a few minutes. It is given twice or thrice a day. One spoonful of food treated

with eight or ten spoonfuls of water will serve for a drink between meals. The food does not suit children under six weeks of age. In older children it can be given alone, and to supplement imperfect suckling. It has been used in cases of simple insufficient feeding, dyspepsia, enteric catarrh, and enteritis. The results were satisfactory; at least, as good as those obtained from other modes of artificial feeding, although not clearly better. On the whole, the food seems to be more adapted, in all cases, to children over six months of age than to younger children.

REHN ON ULCERS OF THE STOMACH IN CHILDREN.—Dr. H. Rehn (*Fahrbuch für Kinderheilkunde*, vol. vii. p. 19) discusses fully the whole subject of gastric ulcers in children. He speaks of seven kinds of ulcer—catarrhal, hæmorrhagic erosion, tubercular, follicular, simple perforating, gangrenous, diphtheritic. This order indicates the relative frequency of occurrence, gangrenous and diphtheritic ulcers being uncommon. The only kind of ulcer which is in any way peculiar to childhood is the follicular ulcer. Billard was the first to describe a disease of new-born children by the name of follicular gastritis. Dr. Rehn refers to the opinion of Bohn (*Die Mundkrankheiten der Kinder*, Leipzig, 1866), that, if by the word follicle be meant a lymphatic follicle, these ulcers are not follicular; lymphatic follicles are not commonly present in the stomach of newborn children. The minute mucous follicles are at fault; their mouths are plugged by a plug of epithelium; minute mucous cysts result, and also, if the plugs do not escape, inflammation and ulceration. Rehn concludes that the exact nature of this follicular gastritis is not yet ascertained.

VON HÜTTENBRENNER ON THE TREATMENT OF TETANUS AND TRISMUS NEONATORUM WITH CHLORAL-HYDRATE.—Dr. A. von Hüttenbrenner (*Fahrbuch für Kinderheilkunde*, vol. vii. p. 30), from observations made by himself and others, has come to the following conclusions. Tetanus of the newly born is not an absolutely mortal disease. It is accompanied by fever or not. Those cases which are very febrile and acute are probably dependent upon a general blood-poisoning, and the fever-free cases are to be looked upon as reflex spasm consequent upon peripheral excitation. The prognosis is more favourable in the non-febrile than in the febrile cases, although even in the latter recovery may occur. Chloral is by no means a specific for tetanus, yet is to be preferred to all other medicaments, and for these reasons. It is a simple hypnotic; it is not accompanied by the disagreeable consequences of morphia, especially the cerebral hyperæmia; it is easily given to children, with a very small risk of cumulative excessive action. The dose is one or two grains dissolved in the mother's breast-milk, obtained for the purpose, and carefully poured through the child's nose. The dose must be repeated with each paroxysm, until the child passes into enduring sleep. The administration by the nose is usually followed by a severe paroxysm. SAMUEL GEE, M.D.

THE Order of the Red Eagle of the second class has been conferred on Professor Bardeleben and Du Bois-Reymond, of Berlin; and of the third class on Professor Virchow, of Berlin, and Professors Schultze and Veit, of Bonn.

MATERIA MEDICA AND THERAPEUTICS.

SIEGEN ON THE ACTION OF EUCALYPTUS GLOBULUS; WITH SOME EXPERIMENTS ON FEVER.—This subject has lately been investigated under the direction of Professor Binz of Bonn, by Theodor Siegen (*Ueber die Pharmacologischen Eigenschaften von Eucalyptus Globulus*: Inaugural Dissertation). The oil of eucalyptus having been proposed as a substitute for quinine, experiments were made for the purpose of ascertaining whether it possessed the same antiseptic action which quinine has been proved by Binz to possess. These showed that eucalyptol is quite as powerful in this respect as quinine, and like it prevents decomposition in albuminous solutions or blood, and retards the growth of fungi in solutions of tartaric acid or tannin, although they grow readily on moist eucalyptus leaves. It hinders alcoholic fermentation much more than quinine does. Siegen quotes an interesting observation of Gimbert, who found that, after the injection of eucalyptol into a rabbit, the blood which was afterwards drawn did not decompose, and the body became mummified but did not decay. Eucalyptol depresses the temperature of the healthy body even more than quinine: 1·35 grammes (21 grains) of it reduced the temperature of a rabbit 2° Cent. (3·6° Fahr.) in one experiment, and 120 drops (4·2 grammes) lowered that of a healthy man 5° Cent. (9° Fahr.), and that too in the evening when it would normally have risen. Four doses of twenty drops taken at intervals of an hour did not impair the appetite, but produced a sort of drunkenness, which in an hour and a half passed into mental depression and exhaustion lasting for several hours.

The sweat had a perceptible odour of trimethylamine. Very little eucalyptol appears unchanged in the urine, but a considerable quantity of resin is to be found in it. This resin diminishes reflex excitability of the spinal cord in the same way as eucalyptol, but more slowly and less permanently.

Eucalyptol diminishes the temperature in fever as well as in health. Some very interesting experiments showed that several organic ferments produced a rise of temperature when injected into an animal. Among these were ferment obtained from fresh pus by Von Wittich's method, diastase, and ferment from the liver. The symptoms produced by the ferment obtained from pus differ from those caused by the injection of pus itself, the rise of temperature being considerable, but the general condition good and the confusion and prostration produced by pus being absent. The rise of temperature which occurs after injection of these ferments is due to their action as ferments, and not to their mere presence in the blood as foreign bodies. This is shown by the rise being absent when the solutions are boiled before injection. Both the ferment of the liver and diastase induce such chemical changes in defibrinated blood as to cause a rise of temperature in it after the mixture has stood for one or two days. Eucalyptol, like quinine, hinders oxidation in protoplasm. From clinical experience, Siegen concludes that large doses of eucalyptol are very beneficial in febrile diseases of the respiratory organs, especially in whooping cough. Large doses (15 drops every two hours in a child eight years old) produced no bad effects. In several cases the eucalyptol acted as an anthelmintic. It ought to be given as an alcoholic solution.

BLAKE ON THE ACTION OF THE SALTS OF SODA AND ALLIED BASES INTRODUCED DIRECTLY INTO THE BLOOD.—Dr. Blake (*Journal of Anatomy and Physiology*, June, 1873) has investigated the action of salts of soda, lithia, caesium, rubidium, thallium, and silver. Those used were the nitrates of soda and silver, the sulphates of lithia and thallium, and the chlorides of caesium and rubidium. When injected into the jugular vein, they arrested the passage of blood through the lungs and greatly diminished the pressure of blood in the arteries in the course of a few seconds. On *post mortem* examination, the lungs of animals poisoned by soda or lithia were found cedematous. In those poisoned by the other metals, the right side of the heart was much distended, and the left nearly empty. All these metals kill by their action on the lungs, either by arresting the circulation through them, or by causing such changes in the pulmonary tissue as rapidly prevent the aeration of the blood. They do not diminish the irritability of the heart, but, on the contrary, prolong its vitality. None of them, with the exception of caesium, have any direct effect on the functions of the nervous system. Although they have such a powerful action in causing contraction of the pulmonary capillaries, they all, with the exception of silver, pass with great facility through the systemic capillaries, unless introduced into the arteries in large quantities. Very much larger quantities can be introduced into the arteries than into the veins without causing death; and it is only when injected into the arteries in quantities large enough for them to reach the lungs in a sufficiently concentrated state to act upon these organs, that they kill. These properties belong to all the more strictly isomorphous members of the group. The only exceptions are caesium and silver, the latter being evidently an outlying member of the group.

The former exerts a decided action on the nervous system when introduced into the arteries, and a small quantity of a silver salt in the arterial blood causes obstruction to its passage through the systemic capillaries. The arrest of the pulmonary circulation may be due either to contraction of the pulmonary capillaries or to changes in the shape of the corpuscles. In the blood of an animal poisoned by caesium, the corpuscles in the venous blood were thickened and crenated. In the left side of the heart not a single crenated corpuscle was found. The corpuscles never formed rouleaux. The molecular movements were very active many hours after death. The nitrate is much more poisonous than any of the other soda salts.

T. LAUDER BRUNTON, M.D.

GRISAR ON THE ACTION OF ETHEREAL OILS.—A very interesting research on this subject has lately been made in the laboratory of Professor Binz at Bonn. Under his direction, Grisar (*Experimentelle Beiträge zur Pharmacodynamik der Ätherischen Oele*: Inaugural Dissertation), has experimented with oil of valerian, oil of chamomile, oil of eucalyptus globulus, camphor, and oil of cummin. All these substances, when administered to frogs in less than the fatal doses, greatly diminish reflex excitability. This action may continue for a period of several days, varying according to the quantity and kind of oil used. Camphor has the strongest and most persistent action, and after it come in order the oils of valerian, chamomile, eucalyptus, and cummin. A stage of excitement almost always precedes the depression caused by camphor or the oils of valerian, chamomile, and cummin. This is due to the fact

that a small quantity only is absorbed at first, and this has a stimulating action, but, as the absorption goes on, the depressing effect succeeds. Small doses of ethereal oils have a stimulating action only. This disappears at the end of a few hours. Ethereal oils depress reflex excitability by acting directly on the cord, and not by stimulating the inhibitory centres in the brain. This is evidenced by their lessening reflex excitability after the cord has been divided and thus separated from the brain.

Another series of experiments showed that ethereal oils do not depress reflex excitability in animals under normal conditions only, but do so also when the excitability has been pathologically excited to the utmost by the previous administration of strychnia, brucia, or carbonate of ammonia. They diminish excitability both by acting on the reflex apparatus in the cord (as was shown by the experiments with strychnia), and by influencing those centres in the brain which excite convulsions. This appears from the experiments with carbonate of ammonia, which has been shown by Rosenstein to act upon the brain and produce symptoms exactly resembling those of an epileptic fit. Experiments on rabbits showed that the action of oil of valerian and oil of eucalyptus on warm-blooded animals is similar to that which they exert upon frogs. Oil of chamomile and oil of cummin were not tested, but probably act in the same way. Camphor, on the contrary, produces convulsions in warm-blooded animals. A good example of the connection between physiological action and chemical constitution is afforded by camphor and oil of cummin or cymol. The formula of the former is $C_{10}H_{16}O$, that of the latter is $C_{10}H_{14}$, differing from the other only by the elements of water H_2O . Equal doses of the two preparations were given to two rabbits of the same size. That which received the camphor urinated frequently and died in convulsions, while that treated with cymol presented no abnormal symptoms. In all clinical and other experiments with essential oils, it must be borne in mind that they are very slowly absorbed.

FICK ON THE ACTION OF SPARTEIN.—J. Fick (*Archiv für experimentellen Pathologie und Pharmacologie*, vol. i. p. 397), finds that spartein has an action somewhat analogous to that of conia. Spartein was discovered by Stenhouse, and was found to have the formula $C_{16}NH_{13}$; it differs from conia ($C_{16}NH_{15}$) only by H_2 . 1. Spartein impairs the activity of the brain both in frogs and in mammals, and may therefore to a certain extent be regarded as a narcotic. This action on the brain is by no means intense, and entire loss of consciousness is never observed even when poisoning is most complete. 2. It has a powerful action on the spinal cord, and greatly lessens reflex action. 3. It paralyzes motor nerves, which completely lose their electric excitability after a large dose of the poison. 4. The vagus is completely paralysed by comparatively small doses of the drug, so that irritation of its trunk by electricity no longer produces any inhibitory effect on the heart. Larger doses paralyse the inhibitory centres in the heart itself, so that neither irritation of the venous sinus nor the application of muscarin can produce still-stand in diastole. 5. Spartein appears to produce death in mammals by paralyzing the respiratory centre, and life can be prolonged for a considerable time by artificial respiration.

T. LAUDER BRUNTON, M.D.

DOBELL ON PANCREATIC EMULSION AND PANCREATINE.—Under the title of 'Further observations on the use of these substances in consumption, marasmus, tabes mesenterica, and other wasting diseases of children and adults,' Dr. Dobell reprints a paper which appeared in the *Practitioner* for October 1872, with some additions. We quote from it the following references to the formulæ for their manufacture: 1. 'On the action of Pancreatic Juice upon Fat and Starch,' *Proceedings of the Royal Society*, 1868, no. 97; 2. *Pharmacopœia of the Royal Hospital for Diseases of the Chest* (Churchill's, 1869); 3. *Squire's Pharmacopœias of the London Hospitals*, 2nd edition; 4. *Squire's Companion to the British Pharmacopœia*, 7th edition; 5. The Appendix to Dr. Dobell's work on *Diet and Regimen in Sickness and Health*. 5th edition (Lewis). Some of the cases which, occurred in hospital and private practice are of extreme interest. The reporter knows of other patients, suffering from phthisis pulmonalis, forms of dyspepsia with mal-assimilation of fat, and diabetes, who have derived very great benefit from these remedies, especially pancreatic emulsion. Some of these were treated in the London Hospital by Dr. Langdon Down and other physicians; and some were private patients.

W. BATHURST WOODMAN, M.D.

ATHILL ON SUBCUTANEOUS INJECTION FOR VOMITING OF PREGNANCY.—Dr. Athill (*Medical Press and Circular*), says that the hypodermic injection of morphia occasionally controls the vomiting met with in pregnancy, or that which sometimes follow severe cases of *post partum hæmorrhage*. The formula which he now adopts for the solution to be injected subcutaneously is the following:—

| | |
|----------------------------|---------|
| Acetatis morphiæ | 8 gr. |
| Liquoris atropiæ | 48 min. |
| Glycerini | 5 min. |
| Aquæ, ad | 4 drs. |

Fifteen drops of this solution contains half a grain of the acetate of morphia, and about the fortieth of a grain of atropia.

BERGERET ON GOITRE.—M. Bergeret d'Arbery (*Quelques Cas de Goitre Vertigineux, &c.*, Besançon, 1873) recommends with confidence the employment of iodised kitchen-salt as a remedy in goitre.

BUFALINI ON CAMPHORATED PHENOL.—In a note on the subject (*Campania Medica, and Gazzetta Medica Italiana-Lombardia*, November 8), after noticing the chemical and therapeutic properties of carbolic acid, Bufalini goes on to speak of its behaviour when combined with camphor.

In making experiments with carbolic acid for the purpose of preserving animal substances from putrefaction, Bufalini met with a peculiar phenomenon when it was in contact with camphor. When about equal parts of carbolic acid and camphor are dissolved in alcohol, in about twelve or thirteen hours there arises to the surface of the solution a yellowish stratum of oily appearance; it does not mix with the liquid or with water, nor is the camphor contained in the alcohol precipitated by water. All this indicates that a chemical combination has taken place, forming a substance which Bufalini calls camphorated phenol.

In preparing this compound, Bufalini prefers the two following methods. In the first, one part of carbolic acid and two of camphor broken into small pieces are mixed in a vessel and allowed to stand for

some hours, when a reddish yellow oily liquid will be formed; this is camphorated phenol, which is purified by washing with cold water. The second method consists in dissolving three parts of carbolic acid in ten of alcohol, and five of camphor in twelve of alcohol, mixing the solution in a wide-mouthed vessel, and allowing the mixture to stand for a day or two: the camphorated phenol rises to the top, and may be removed by simple decantation.

Prepared in either of these ways, camphorated phenol is a liquid of oily appearance, reddish yellow or wine-red in colour, having a smell of camphor, insoluble in water, but soluble in alcohol and ether.

Regarding its therapeutic uses, the author gives the following as his conclusions.

1. Camphorated phenol produces the same effects as carbolic acid, but is less dangerous. It may be used both externally and internally—*e.g.* in enteric fever and other infectious disorders.

2. It has the power of modifying unhealthy wounds, and of destroying the parasites which are present in certain diseases, as septicæmia, typhoid forms of fever, &c.

3. The medical use of camphorated phenol is to be preferred to that of carbolic acid, as the former does not present the disadvantages of the latter.

4. Camphorated phenol, when applied to wounds, does not irritate them, or act as a caustic, or disorganising substance on them; and may be used in large doses, without producing symptoms of poisoning.

A. HENRY, M.D.

FORMULARIES.

VARICK ON CAOUTCHOU ELECTUARY AS A REMEDIAL AGENT.—Dr. T. R. Varick (*New York Medical Record*, Nov. 15) recommends caoutchouc as a remedial agent, in preference to cod-liver oil, in certain cases of pulmonary tuberculosis, chronic bronchitis, the winter coughs of old people, and in chronic rheumatism. Prepared in the following manner, the dose is a teaspoonful three times a day, about two hours after meals.

Solution of Caoutchouc.

B. Caoutchouc (in thin slices) . . . 3j;
Oil of turpentine . . . 3ij. M.

Macerate until solution is effected, and strain through coarse muslin.

Electuary of Caoutchouc.

B. Solution of caoutchouc, . . . 3ij
White sugar . . . 3iiss
Honey (strained) . . . 3ijss.

This mixture should be of opaque yellow colour, and thick enough to run very slowly off a spoon. It contains about two grains of pure caoutchouc to each teaspoonful. [What next?]

IODISED SYRUP OF COFFEE.—The syrup of coffee, according to Dr. Calso Aîné (*L'Union Médicale*, Dec. 11) is an excellent means of disguising the flavour of the iodide of potassium, and of rendering this valuable medicine palatable to patients. The following formula is given.

Syrup of coffee . . . 500 grammes.

Iodide of potassium . . . 16 grammes.

Mix.—Take two to three tea spoonfuls daily.

RECENT PAPERS.

On Nitrite of Amyl and its Use in Therapeutics. By R. Pick. (*Centralblatt für die Med. Wissenschaften*, no. 55, 1873.)
The Action of Ergotin. By Dr. Wernich. (*Ibid.* no. 58, 1873.)

OBSTETRICS AND GYNÆCOLOGY.

VALENTINOTTI ON A CASE OF CÆSAREAN SECTION: APPLICATION OF ELASTIC SUTURES TO THE UTERUS.—Dr. F. Valentinotti, of Trissino in Vicenza (*Gazzetta delle Cliniche*, November 18) had under his care a woman, aged thirty, rickety, and much deformed in consequence, on whom it was found necessary to perform Cæsarean section. The operation was performed on October 2nd, labour-pains having set in; and a living female child, of full time, and strong, was removed. There was no vomiting or hæmorrhage of any consequence. An elastic ligature was applied to one of the uterine arteries, which yielded a rather large jet of blood. Dr. Grandesso Silvestri, who was present in consultation, applied to the uterus four sutures of elastic thread covered with silk, passing the needle through the entire thickness of the organ; in applying each suture, the finger of an assistant was placed between it and the uterus, so as to prevent too great constriction of the tissues. The ends were cut off. The wound in the abdominal wall was united by four ordinary sutures; and strips of adhesive plaster, cotton-wool, and a bandage were applied. On the twenty-seventh day after the operation, the wound in the abdominal wall was quite healed, and the patient was convalescent.

Dr. Valentinotti believes that the elastic suture, by adapting itself to the contractions of the uterus, keeps the edges of the wound constantly in contact, thus favouring union, and also preventing the passage of blood and exudation into the peritoneal cavity.

ROTA ON A CASE OF CÆSAREAN SECTION AFTER DEATH: REMOVAL OF A LIVING CHILD.—Dr. Rota, of Chiari, describes in the *Gazzetta Medica Italiana-Lombardia* for October 16, 1873, the case of a woman aged forty, who, at the beginning of the ninth month of her fourth pregnancy, had œdema of the eyelids, difficult breathing, dropsy of the pudenda and lower extremities, and scanty urine. The symptoms having become urgent, an attempt was made to induce premature labour by the introduction of sponge-tents, but without success. Two days later, having risen to the standing position on account of the severity of the dyspnœa, she fell dead.

The Cæsarean operation was performed by Dr. Rota, assisted by Dr. Pasolari, a few minutes after death: the child, a male, did not at once breathe, but was revived by means of a warm bath, sprinkling with cold water, and artificial respiration after Silvester's method.

A. HENRY, M.D.

DUNCAN ON EFFECTS OF PRESSURE ON THE FETAL HEAD.—Dr. J. Matthews Duncan (*British Medical Journal*, Oct. 18) reports a case in which a persistent digital impression was produced on the parietal bone of a fœtus during birth by the finger of the accoucheur, who was endeavouring to effect artificial rotation. The result was slight, short, but frequently repeated epileptiform seizures, which lasted some time after the digital impression had disappeared, and which were finally replaced by choreic movements.

SAVAGE ON FLEXION IN THE NULLIPAROUS UTERUS.—Dr. T. Savage, of Birmingham, gives a paper (*Obstetrical Journal*, November, 1873)

on flexion in the nulliparous uterus, in which he states that he has treated forty-four women with intrauterine stem-pessaries, without meeting with any ill-effects, so far as he knew, nearly all the cases having been attended, at the least, several times; at all events long enough to be watched and to discover if anything did arise. The chief difficulty, however, which he had was, not the course to pursue, but by what means the stem was to be kept within the uterus; and although he found other kinds suitable, yet, on the whole, he thought the shelf-pessary adapted to the size of the vagina the best mode.

MATTHEWS DUNCAN ON RECURRING UTERINE POLYPUS.—In the *Obstetrical Journal* for November, 1873, Dr. Matthews Duncan narrates a case of recurring intrauterine polypus, which, after the first operation for removal, presented hyperplasia of the glandular structure of the lining of the uterus, without any special indication of malignant affection. It was very soft, and readily crushed by the finger; it sprang from the fundus.

J. BRAXTON HICKS, M.D.

GAJASY ON FATTY DEGENERATION OF THE UTERUS.—Dr. Ludwig Gajasy (*Allgemeine Wiener Mediz. Zeitung*, Dec. 30, 1873) relates an interesting case of this nature occurring in a young woman aged nineteen.

Five or six weeks previously to her admission to the hospital, she stumbled and fell on the abdomen. A swelling gradually formed, which at length prevented her from moving. It was tapped, but only a little sanguineous fluid exuded. The patient gradually became weaker, and died from exhaustion.

On a *post mortem* examination, an extraordinarily hypertrophied uterus, in a state of fatty degeneration, was found to be the cause of the extensive swelling and hardness of the abdomen. The walls were three finger-breadths thick, and thickly sown with fat-globules. The uterine mucous membrane was partly in a state of inflammation, partly loosened, and in places disintegrated.

HABIT ON A CASE OF PLACENTA PREVIA: SIMULTANEOUS EXISTENCE OF A FIBROID TUMOUR IN THE UTERUS.—Dr. Habit (*Allgemeine Wiener Mediz. Zeitung*, Nov. 18, 1873) relates a case where the patient, towards the end of the eighth month of her pregnancy, had recurrent hæmorrhages; and on examination a fibroid was detected in the posterior wall of the uterus.

Turning was accomplished. The child was still-born. The mother recovered from the shock of parturition, but died ten and a half hours subsequently. No *post mortem* examination was allowed.

ARTHUR W. EDIS, M.D.

RECENT PAPERS.

A Case of Extraordinary Presentation of a Malformed Fœtus; with Remarks on some of the Difficulties attending the Births of Monstrous or Diseased Children. By Dr. E. Perro. (*Gazzetta Med. Italiana-Lombardia*, nos. 50 and 52, 1873.)

Extra-Uterine Pregnancy; Rupture into the Rectum. By Dr. Lang. (*Betz's Memorabilien*, vol. xviii. no. 10, 1873.)

DR. AUGUST HERMANN, senior surgeon to the hospital in Prague, and professor extraordinary of surgery in the University, died of hydrophobia on January 7. He had been bitten slightly in the hand by a greyhound about six weeks previously.

REVIEWS.

Les Climats de Montagnes considérés au point de vue Médical. Parle Docteur H. C. LOMBARD. Troisième édition entièrement refondue. 12mo, pp. 232. Genève: Cherbuliez & Co., 1873.

In this new edition of a book, the first appearance of which dates from 1858, Dr. Lombard offers the results of almost a life-long study of the influence of Alpine climates on the human constitution. He gives a general view of the physiological and pathological action of mountain climate in all parts of the world; but the chief value of the work consists in the account of the distribution of disease in Switzerland according to altitude, and in the judicious and impartial survey which it affords of the innumerable Alpine stations in that country, and of their comparative value. On such subjects, Dr. Lombard can speak with the authority due to long experience. From an examination of their meteorological phenomena, he draws these conclusions; that the mountains present an atmosphere colder, lighter, and less variable, than that of the plains; that, while high summits are remarkably dry, there is an intermediate zone, which is moister than the summits, or than the plains, subject also in a greater degree to storms and to electrical disturbances.

The chief physiological effect of residence in mountains he considers to be a sort of carbonic plethora, the result of imperfect oxygenation of the blood. From this doubtful conclusion, we pass on to matters of fact as to the distribution of disease. He divides mountain climates into Alpine and Alpentine; the former being above 6,000 feet elevation, the latter below it. As a rule, Alpine stations are only to be found out of Europe. Passing by the *mal de montagne*, characterised by disturbance of the nervous system and digestion, by a feeling of lassitude and of dyspnœa, which may sometimes last for even months in those recently arrived, Lombard tells us, that the four most characteristic diseases of the inhabitants are (1) anæmia, and the nervous conditions attaching to it; (2) tendency to hæmorrhages and epistaxis; gastric, intestinal, uterine, and pulmonary hæmorrhages are frequent; cerebral hæmorrhage and hemiplegia are not unfrequent; (3) inflammations, as meningitis, pleurisy, and pneumonia; (4) asthma and emphysema are extremely common. While such are the four chief diseases, the following also are frequent: ophthalmia, and erysipelas and irritability of the skin, at great heights; also diarrhœa, dysentery, and hepatitis are not unknown. Rheumatism is general. Typhus and typhoid fever are common in Mexico.

The diseases that are rare, are pulmonary phthisis, and hæmoptysis. Intermittent fever is rarely known. Although, as already said, they have been found high up, diarrhœa, dysentery, and hepatitis have only shown themselves exceptionally in certain places. On the whole, they are not nearly so usual above as lower down. Small-pox and cholera have often been epidemic at a height of 6,000 feet. Yellow fever has not risen above 2,800 feet (?) Scrofula is rather rare in high regions.

We now come to Alpestrine regions, or those which are less than 6,000 feet in elevation.

Pneumonias, pleuropneumonias, pleurisies, pleuritis pestilens, acute bronchitis, are common. Influenza is little known; rheumatism is very frequent, often producing permanent lameness of the hip-joint in old

men; hæmorrhages in general, though not so frequent as in Alpine elevations, are more common than in the plains below; hæmoptysis becomes more and more frequent as one descends to the middle zone, while it is the reverse with epistaxis, hæmatemesis, and metrorrhagia.

Gastralgia and diarrhœa appear to be not unfrequent. There are occasional bad epidemics of dysentery. Icterus and bilious affections are not common; uterine disorders are very much so; intermittent fever is very rare. Unfortunately, eruptive fevers and typhoid are just as virulent as in the plains, though some districts may seem to escape. Asthma, chronic pulmonary catarrhs, and disease of the heart are quite common. Dr. Lombard comes next to consider the frequency of phthisis. After a great deal of investigation he has convinced himself that a certain zone, varying in different districts, but which may be said to lie between 1,200 feet as a minimum, and 3,600 feet as a maximum; in fact, the variable zone already described, though he does not say so, has more phthisis than the region above, or than the region below. This he thinks is absolutely made out for Switzerland, but he is not satisfied as regards the limit for other parts of Europe; and he thinks that in the tropics the line of immunity from phthisis does not descend below 6,000 to 7,500 feet. As to scrofula, it appears to have a zone of prevalence nearly identical with that of phthisis. Much the same applies, though less definitely, to goitre and cretinism, which are common in all mountainous countries, but do not reach to any of the greater heights.

An important chapter is devoted to the diseases, which can be advantageously treated in the Alpine region; for Dr. Lombard remarks that scarcely any of the stations in Europe, where patients reside, exceed 6,000 feet in elevation; the great majority of them are only at a height of about 3,000 feet.

Chlorosis and anæmia profit much, so also does what the French call paludal cachexy. Cases of hyperæsthesia and hysteria, and neuralgic headaches are often greatly relieved, as also hypochondriasis, and debility after recent illness or hard work, convalescence from acute pulmonary attacks and notably hooping-cough. Disordered menstruation is benefited; also chronic bronchitis and even asthma, where there is no emphysema. Phthisis in its early stages is cured by mountain climate, Dr. Lombard thinks, by the generation of emphysema, which causes the compression and obliteration of the vessels from which hæmoptysis proceeds, and also by the pressure of the lung-vesicles facilitating the absorption and removal of morbid products. In its advanced stages, very few writers recommend a mountain climate for phthisical patients, nor does our author.

Hæmorrhoidal congestion, scrofula, and goitre, all profit by a mountain climate. Diarrhœas not connected with organic mischief are often cured, with the aid of a careful diet, but scarcely, if there be ulceration of the bowels or affection of the liver.

Organic diseases of the heart or of the large blood-vessels are positive contraindications to mountain climate.

Such is an abstract of a work, in which the most striking views laid down are, the existence of a sub-alpine zone, in which both phthisis and scrofula are more common than lower down, or higher up, and the belief that phthisis is cured by the production of emphysema. As to the physiological effects of mountain air, there is only given a digest of the results of the observations of others.

It is to be hoped that the Indian medical service, though doing much in other branches of medicine, may find time to respond cordially to the reference, which, we understand, has been made to them by the Indian government. They might supply valuable information, and supplement that which has been furnished by their French brethren.

J. MACPHERSON, M.D.

A System of Midwifery, including the Diseases of Pregnancy and the Puerperal State. By WILLIAM LEISHMAN, M.D., Regius Professor of Midwifery in the University of Glasgow, &c., pp. 835. Glasgow: J. Maclehose, 1873.

Dr. Leishman, well known to the obstetric student through valuable monographs on various subjects, particularly his philosophical and masterly essay on the *Mechanism of Labour*, now appears before us as the author of a voluminous, well-arranged, and thoroughly practical text-book on the subject of midwifery. Dr. Leishman's *System of Midwifery* is profusely illustrated, and contains a fair representation of the views entertained by the most esteemed writers and teachers of the present day. The style is good, and the printing excellent.

In a work of this kind, it is difficult perhaps to avoid the extremes of superfluous citations of authorities and a too dogmatic treatment of the subject; both extremes are bad. Dr. Leishman's work might perhaps have been a trifle more dogmatic, but that it is not, is hardly a fault. The real student of a subject is fond of a big book, and will prefer one that will assist him in going to the root of the matter to a mere *précis* of the subject.

It is impossible in this notice to allude to more than a few points in detail. Dr. Leishman advocates, we think wisely, the employment of the straight in preference to the curved forceps in ordinary cases, the straight instrument being more easily applied, and being applicable to all but a few cases. Dr. Leishman believes, we are glad to see, in the efficiency of the binder. On another point, also very important in reference to the after-treatment of the puerperal patient, he is equally positive, viz., his disapproval of the practice which long prevailed, but is now happily passing away, of depriving the patient of her usual food during the first three or four days immediately following the labour.

In criticising the various methods of inducing premature labour, we think the 'rupture of the membranes' is hardly treated by Dr. Leishman with proper consideration. In many cases we believe it by far the best of the methods available; although undoubtedly, where time is an object, the dilatation of the cervix by hydrostatic pressure is preferable, inasmuch as it both excites uterine action and accomplishes a portion of the work which has to be done.

The treatment of retention of the placenta in cases of early abortion, attended with hæmorrhage, is a subject of interest. Dr. Leishman appears to prefer leaving the placenta to be expelled by natural efforts, unless the os is pretty well dilated, trusting meanwhile to the plug. Like all practical men, he prefers the fingers to any other instrument for removing the placenta under such circumstances. Upon the treatment of cases of *post partum* hæmorrhage by application of perchloride of iron to the interior of the uterus, Dr. Leishman pronounces no very definite opinion. He states that this procedure 'was originally used by D'Outrepoint and also by Kiwisch,

who, upwards of twenty-five years ago, strongly supported this method of treatment.' Adverting to the objections urged to this remedy, he says: 'We do not wish in any way to undervalue their objections; but even admitting their validity, and viewing the operation in the light of a desperate remedy, the facts which are given by Kiwisch, and recently in this country by Dr. Barnes, are such as to afford us much encouragement, and may warrant us, under certain conditions, in availing ourselves of this method of treatment.' Whether the remedy be finally accepted by the profession or not, it is probable that good will result from the discussions elicited on the subject, and the greater attention which will in future be paid to the prevention of *post partum* hæmorrhage. There are good reasons for concluding that, when proper preventive treatment is carried out, the occasions for the perchloride injections will be very few and far between.

On the management of the infant during the month, a subject too generally slurred over in similar text-books, Dr. Leishman has a satisfactory practical chapter. The subject of puerperal fever is discussed by Dr. Leishman at some length. He apparently adopts—though with limitations—the zymotic, to the too great exclusion, as we think at least, of the pyæmic theory of puerperal fever. We believe that professional opinion is more and more inclining to the conclusion that in puerperal fever we have an affection which is, in one form or other, a pyæmia, commencing at the internal surface of the generative organs. We need not dwell on the importance of the corollaries which result from this latter view of the matter, particularly in reference to the preventive treatment of a disease which, when once thoroughly established, has hitherto proved very unsatisfactory to deal with.

Ignipuncture. Its Different Uses, and its Special Indication for White Swellings. By DR. TRASSENARD. 8vo. Paris: A. Delahaye, 1873.

In this inaugural thesis, Dr. Trassenard describes a mode of treatment much employed by Professor Richet. He explains in successive chapters the mode of proceeding, the pathological physiology of ignipuncture, and then reviews the various affections on which it is employed by M. Richet, and explains its indications and counter-indications. The thesis is one worthy of being consulted.

MISCELLANY.

LADY DOCTORS IN GREAT BRITAIN.—A considerable step has been made by the King and Queen's College of Physicians of Ireland towards the licensing of the practice of midwifery by ladies in this country by a registrable diploma. This college holds a charter, dated 1692, which was specially granted to it for the purpose of examining and licensing midwives, and punishing those who were not licensed. It has, however, in the course of a hundred years, licensed two only, and has used for men exclusively the powers granted in behalf of women. It has now been applied to in behalf of women, and has expressed its willingness to fulfil the terms of its charter, and having passed a resolution admitting the principle, has also appointed 'a committee to report to the college on the qualification and examination to be adopted in the case of candidate midwives, and the form of the diploma to be conferred on them.'

THE UNIVERSITY OF WÜRZBURG, a notice of which was given in the MEDICAL RECORD of December 24, is about

to receive a valuable addition to its staff in the person of Professor Rindfleisch, of Bonn, the author of a work of high merit on Pathological Anatomy, well known to English readers through its translation by the New Sydenham Society. He has been appointed Professor of the subject on which he has so ably written, in the Würzburg University; and Professor Klebs, who has hitherto held the post, goes to the University of Prague.

THE RIBERI PRIZE.—The following are the conditions of the fifth competition for the Riberi prize of 20,000 lire (800*l.*); the subject of which is 'the Pathology of the Female Generative Organs.' 1. Complete treatises and monographs are admitted to competition; 2. The works, written in legible characters or printed, must be presented in the Italian, Latin, or French language, and will become the property of the Royal Academy of Medicine of Turin; 3. Printed works must have been published in 1874, 1875, or 1876; two copies must be sent post free; 4. The essays in competition, written or printed, must be sent to the Royal Academy of Medicine in Turin before Dec. 31, 1876.

THE AMSTERDAM MEDICAL CLUB has agreed on the following tariff of fees from January 1.—For ordinary visits, 2, 1'50, 1, and 0'60 florins; for vaccination, 10, 5, and 3 florins; for subcutaneous injection, 3, 2, 1'50, and 0'75 florins; for visits in the country, in addition to travelling expenses, 5 and 3 florins per hour. (The Dutch florin is = 2*s.* 11*d.*).

A NEW hospital, constructed on the most modern and sanitary principles, is about to be built in the grounds belonging to the hospital of Santo Antonio in Oporto.

PROFESSOR TRAUBE, on the 25th of last month, completed his twenty-fifth year of office as directing physician of the Charité Hospital in Berlin. Congratulatory addresses from his colleagues, pupils, and friends, were presented to him; and in the evening he was entertained by the directors and staff of the hospital at a dinner, at which eighty persons were present.

THE session of the Medical Society of Lisbon was opened on January 10. The president, Dr. Arantes Pedrosa, delivered an excellent address on the value of hygiene, and pointed out in plain terms the necessity existing for sanitary improvements in the Portuguese capital.

DR. RADZIEJEWSKI, *privat docent* in the University of Berlin, a young physician of great promise, has died suddenly of apoplexy.

CHOLERA occurred in 61 fresh cases in Munich, and caused 36 deaths, on January 21, 22, and 23.

NOTICE.

THE LONDON MEDICAL RECORD is published every Wednesday morning, and may be ordered direct from the Publishers. Annual Subscription, 17*s.* 4*d.*; free by post, 19*s.* 6*d.*

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The London Medical Record.

WEDNESDAY, FEBRUARY 11, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

CLINICAL MEDICINE.

ON THE TREATMENT OF DISEASES OF THE STOMACH. BY PROFESSOR W. O. LEUBE, OF JENA.*

(Concluded from p. 66.)

In proceeding to speak of the treatment of dyspepsia, Dr. Leube says that he has purposely passed over the more deeply seated diseases of the stomach, such as ulcer, cancer, &c.; and that it is not his intention to enter into any details as to the medicinal remedies, sufficient information regarding which will be found in all text-books. Regarding mineral waters, he says that much remains to be done by statistics and experiments before it can be absolutely determined what water will best suit each form of dyspepsia.

He proceeds to comment at length on the dietetic treatment of gastric disorders.

In presenting dietetic rules, he says, I believe that the first principle to be laid down is, that there is decidedly no better diet for a sick stomach than rest.

We obtain perfect rest for the organ only when the food is given, not in the usual way by the mouth, but *per anum*. It has been proved by physiological experiment and by clinical observation, that the use of clysters of meat and pancreatic fluid, as recommended by me, is the means of introducing a considerable quantity of nitrogen into the body, so that in this way a man can be nourished for a long time, and that the feeling of hunger is allayed; and hence the employment of this method is indicated in the most severe forms of stomach-disease. Thus, without detriment to the general nutrition of the patient, the stomach may be relieved of the irritation produced by food, and the diseased process in the mucous membrane may come to a natural end; and further, the advantage is gained, that the medicines administered internally can act with more effect on the inner surface of the stomach than when they are mixed with more or less chyme, and come into contact with the disordered mucous membrane in a state of dilution or chemically changed.

In most cases of stomach-disease, however, it is not necessary to entirely suspend the action of the organ; we gain our object much more completely by allowing the patient an easily digestible diet—provided that this diet is really easy of digestion.

Here we meet with the question which every day forces itself on us at the bed-side, but which it is difficult to answer:—What diet corresponds to the idea of 'easily digestible'? Let us honestly confess that this question has often perplexed us, because on the one hand we feel that in its correct answer lies the central point of the whole treatment of the disease under consideration, and on the other hand we cannot always suppress our own doubt as to the success of our prescription, when we describe this or that diet as easy of digestion. We should not, however, be ashamed of this doubt; for really demonstrative experiments have not been made in this chapter of physiology, at least on an extensive scale. Dr. Leube refers to the experiments made a century ago by Gosse, who had the exceptional power of emptying his stomach by swallowing air, and who observed the changes produced in food at various intervals of time; and to the observations of Spallanzani, Beaumont, Frerichs, Busch, Kühne, &c.

In a stomach-patient it is not altogether desirable that all the food in the stomach should be utilised; for those articles which undergo little change, and pass out of the stomach quickly, so far as they do not produce mechanical irritation, give much less trouble to the diseased organ than those which are readily acted on by the gastric juice, and hence remain longer in the stomach and severely test its impaired powers. In considering the question of the digestibility of food in any given case, the nature of the disease, the individuality and the constitution of the patient, must be taken into account.

In a scientific and physiological sense, the question of the digestibility of different kinds of food is on the whole still unsolved. But we must not therefore abstain from giving our patients directions as to the choice of diet.

Of the different kinds of meat, young veal, fowl, and pigeons are digested with least difficulty. With many persons, fish and beef must be placed in the same category; and it is advised to give the former to the patient in the boiled state only, while beef is recommended to be brought to the table roasted, but retaining a red colour. It is an old culinary observation, that excessive roasting and boiling both render meat tough; and, in accordance with this, the latest published researches of Fick have shown that the same digestive juice requires three times as long to act on boiled meat as on raw. In the use of roast meat, it is an established rule, even among the non-professional public, to abstain from the addition of fatty sauces—a rule which finds its justification in the fact that pieces of meat enveloped in fat are less readily acted on by the gastric juice than are pieces of lean meat.

The experience of thousands of years has proved milk and eggs to belong to the class of easily digestible substances. Milk is naturally borne well by many persons suffering from gastric disease, as all must have observed; and raw eggs are said to give but little trouble to the stomach. This latter statement, however, is not confirmed by Dr. Leube, who has found boiled eggs more digestible than raw; and Fick's most recent observations show also that raw albumen has no advantage as regards digestibility. Dr. Leube allows his patients to use only soft boiled eggs.

Of vegetables, the most tender only are to be allowed; such as asparagus, young hops, shelled sugar-peas, and young carrots. Potatoes should never be eaten except in the form of *purée*. Gruel,

* Extracts from a paper read before the fifth meeting of the Thuringian Medical Association at Muhlhausen. (Volkmann's *Sammlung Klinischen Vorträge*, no. 62.)

containing particles of groats which may irritate the stomach, is specially to be avoided.

The bread should be wheaten, and absorbs the gastric juice better if it have been baked for some time.

I avoid alcoholic liquors, says Dr. Leube, as much as possible in gastric diseases. If the use of wine be urgently desired, it may be given to the patient equally well (as is the custom in England) *per anum* as by the mouth.

Although the use of the diet above described will be followed by good results in many cases of stomach-disease, there are yet very many cases in which, though easily digestible, it is not borne by the patient; and the question arises, what diet is more easily digestible. It is obvious that our object would be gained if we could prescribe a diet which, while possessing the highest nutritive properties, would give the least labour to the diseased stomach. These conditions are most completely met by the peptones themselves, which are formed from the albuminous matters taken into the stomach and are readily absorbed. But their preparation is attended with great technical difficulties, as it requires, besides the mixture of pepsin and acid, a temperature of 104° Fahr. to be maintained all the day long. Besides, a tolerably large experience has taught us that all solutions made with the natural ferment have such a disgusting smell of vomited matters, that I cannot persuade patients to use them. For about a year, in conjunction with my friend J. Rosenthal, of Erlangen, I have endeavoured to bring meat, under the influence of heat and acid in air-tight vessels, into a state of peptonisation, which will be completed by the pepsin in the human body, even at a lower temperature. Under the influence of the above-mentioned agents, meat forms a very fine emulsion containing more or less peptone. Whether the amount of pepsin be high or low, this solution of meat has been proved by abundant observation to be the most unirritating and nutritious of all preparations of meat, and is borne well even in cases of the most obstinate vomiting. Its advantages are the following.

1. It is soft in consistence, like an emulsion; and thus it does not produce the irritation of the mucous membrane which other articles of food do by their friction on the walls of the stomach. This quality especially fits it for cases of gastric ulcer, inasmuch as all harsh contact with the ulcerated surface is avoided; and this becomes evident from the fact that the cardialgic pains cease in patients with gastric ulcer from the day when they commence the use of the solution of meat. In treating patients with this affection, my method is as follows. I keep the patient in bed two or three weeks, and apply to the epigastric region hot poultices by day, and a Priessnitz's wrapper by night; and I allow him to eat nothing but a pot of the solution of meat (equal to half-a-pound of beef) daily, and two pipkins of milk, with finely powdered biscuit soaked in it. Under the use of this diet, the patients almost uniformly improve rapidly; the vomiting ceases, the pain disappears, and even deep pressure on the epigastrium from day to day becomes less painful. After two or three weeks, I proceed carefully to more solid food, assuming that the healing of the ulcer has sufficiently advanced; but naturally, the digestion of such food only as has been above described as easily digestible, will be as yet expected from the sick stomach.

2. The taste of the preparation reminds one of Liebig's extract of meat, but it is much duller. I

give it either pure, in ice or with meat-broth, or I add a little of Liebig's extract to it, to heighten the taste. It is very readily taken by the patients: but it cannot be denied that in some cases, after using it for a long time, they begin to feel a repugnance to it. This, however, is not the fault of the preparation, but arises from our habit of changing our articles of diet. Who would not become disgusted with boiled beef, for instance, if he had to eat it morning, noon, and night, for weeks together?

3. The remarkable nutritiousness of the solution of meat depends on the fact that all the constituents of flesh—nitrogen, salts, &c., are contained in the preparation. It thus cannot be compared with Liebig's extract of meat, the direct nutritious value of which is not in the present day rated highly by anyone.

4. The easy digestibility of the preparation cannot be doubted, from its consistence, and from its being prepared for digestion by treatment by heat and hydrochloric acid. The question of nutritiveness and digestibility, however, can only be settled by experiments on animals, and by quantitative determination of the amount of nitrogenous matters in the excreta of persons living exclusively on the solution of meat. Dr. Leube is engaged in carrying out researches of this kind.

5. The preparation will keep well if sufficient care be taken in the manufacture. While using it, I am in the habit of keeping the pot in iced water, in order to prevent it from spoiling.

The range of diseases in which the solution of meat is usefully indicated, is evidently not only the limited one of gastric disorders. Wherever we have to introduce an absolutely non-irritant food into the stomach, and where danger is threatened through the ingesta by overworking the intestinal canal or mechanically irritating its walls, the use of the solution of meat is indicated. I call to your minds typhus [the author evidently means typhoid or enteric fever], dysentery, tuberculous ulcers of the intestines, peritonitis, &c.; also hæmorrhage from the stomach and intestines—in which, however, clysters of meat and pancreas may be administered *per anum* with still less danger.

EPIDEMIOLOGY.

ON THE ETIOLOGY OF TYPHUS FEVER, FROM OBSERVATIONS ON THE BERLIN EPIDEMIC OF 1873. BY PROFESSOR ZUELZER.*

Since the great epidemic of petechial typhus in 1867, which I have already described,† Berlin has been attacked by this disease to some extent. Virchow‡ reported on the cases which occurred in the Charité Hospital in 1871; and Obermeier§ on a portion of the cases in 1873. In my department of the Charité Hospital, the first cases of the disease appeared in the beginning of February, 1873; and up to the end of the epidemic I had altogether

* Eulenberg's *Vierteljahrsschrift für gerichtlichen Medicin*, Neue Folge, vol. xx.

† *Contributions to the Etiology and Pathology of the Typhoid Diseases*, Berlin, 1870.

‡ *Archiv für Pathologischen Anatomie*, vol. liii.

§ *Berliner Klinische Wochenschrift*, 1873, p. 349.

169 male and 31 female patients under treatment. Although the observations on these cases, which I have already in part communicated to the Hufeland Society, will be published as a whole in a larger treatise on acute infectious diseases, certain of the individual results at which I have arrived appear to me to possess an interest for public hygiene, and I will therefore here set forth some of them.

The social conditions of the winter 1872-73 are fresh in our memory. There was abundant employment for the labouring classes; and the increase of wages corresponded completely with the increased price of provisions. In spite of this, all action was often and for a long time hindered in many industrial circles by the numerous strikes. In consequence of the forced interruption of labour, as a rule, the unmarried workmen wandered from many of the larger towns, and the married ones were obliged to be idle and to stint themselves to the utmost in the interval of destitution.

As the next result of this abnormal condition (I must here, in the want of other materials, limit myself to the observations which I had an opportunity of making in my department of the Charité Hospital) relapsing fever broke out anew in November, 1872. It reached its highest point in December and January, and lasted till March. In the beginning of January, the first cases of petechial typhus appeared. In a short time, the disease spread remarkably; although a public lazaretto was provided for the patients, there came into my wards in February fourteen cases, in March sixty-three, and in April eighty-four. That only thirty cases were admitted in May, and nine in June, was not due to the diminution of the epidemic, but to a special regulation of the authorities, in consequence of which patients, who could be moved, were carried to the town lazaretto.

This is not the place to discuss in detail the question of the spontaneous development of typhus in connection with the social conditions that have been described. I will only mention that, with regard to the mutual sequence of typhus and relapsing fever, that which has often been observed was repeated here. First, relapsing fever prevailed alone among certain circles of the population: when it was at its height, typhus appeared, and advanced concurrently with the other for some time, until, in the spring and summer, it entirely gained the upper hand, the relapsing fever having disappeared. In the time referred to, it was interesting to note this sequence in the patients admitted into the Charité. There is here a regulation, that the homeless poor may voluntarily report themselves to the police; by the latter they are lodged in certain rooms of the police station and other institutions, and the sick are sent to the Charité; the homeless poor found by the police are treated in the same way. In the time following December, 1872, the number of sick among the homeless so greatly increased, that frequently two or three waggons in a day came to the hospital with more than twenty—sometimes even thirty—patients. In the first week, with the exception of a relatively small number of ordinary cases, they were exclusively cases of relapsing fever that were brought; next month, scattered cases of petechial typhus were mixed with them; and later on, the police waggons brought cases of the latter disease, with only a few exceptional cases of relapsing fever. Very soon, however, the patients were no longer recruited from the homeless, but also from the prison-houses of Berlin, into which the epidemic had been introduced.

A waggon full of thoroughly depressed, dirty men, in a high state of fever, and often in a state of somnolence, affords a sufficiently horrible illustration of many of our social arrangements. How far the long transport, especially in vehicles not fitted for the purpose, is injurious to typhus patients, will be discussed hereafter in connection with clinical observation.

The disease, as has been said, limited itself at first entirely to those thoroughly destitute individuals technically designated 'tramps'—people without employment, unable to earn the means of support, wandering from place to place, and subjected to all kinds of want. Three or four of my patients, along with ten or twelve others, after enjoying the benefit of the asylum for the homeless to the greatest possible extent, had assembled, in the absence of any other shelter, in a shed in the Müllerstrasse, and had spent several nights there; here they were attacked with the disease and were brought to the Charité. Another similar number of patients attributed their disease to their frequent lodging at night in an empty warehouse in the Prenzlauerstrasse, where, with thirty or forty houseless persons, they found a refuge. Two patients stated that they received the infection in the asylum for the homeless.

Next after these came various groups from the so called *pennen*—lodging-houses of the lowest class, where a price, however small, is paid for a night's accommodation. Nine cases had lodged in the 'Deutsches Verkehr' (Old Jakobstrasse, no. 66). This lodging-house comprises three moderate-sized cellars and three somewhat smaller rooms on the ground floor; these rooms served to lodge a hundred or a hundred and fifty men, often more. The dirt of the rooms and the smell of the air were very great. I have made observations on the spot, which there is not space to relate here. Similar conditions existed in another lodging-house (32 Müllerstrasse) where sixty or eighty persons spent the night: of these, five were brought to the Charité with typhus fever.

Besides these, similar groups of cases came to the hospital from the so-called Christian lodging-houses in Auguststrasse and Oranienstrasse, and, as has already been said, from the Berlin prisons. There were also a number of single cases among the persons living in the immediate neighbourhood of the lodging-houses, who had probably got the disease from them. Several of the patients had had intercourse with the sick in the discharge of their official duties.

Cases also arose in the hospital itself. A large number of persons who had been brought to the Charité with other diseases, fell sick of typhus fever after having been in direct or indirect intercourse with cases of the disease. I alone have had under my notice nine convalescents from relapsing, and two from enteric fever, as well as several cases of pneumonia and other inflammatory diseases and of mental disease, who were seized with the prevailing epidemic.

Besides these, the disease attacked ten male and four female attendants, five of the former and two of the latter being in my department, where it was at last found necessary to engage convalescents as attendants. Of the medical staff, the assistant-physician of the first medical clinic (the late Dr. Bock) and three subassistant physicians, were attacked. Of especial importance in regard to the etiology of the diseases, are the cases of a hospital laundress who

washed the patient's clothes, of a watcher of the dead bodies, and of a labourer in the churchyard of the Charité. According to the assertions of these three persons, which is confirmed by the position of their dwellings and the nature of their employments, none of them had come into contact with our patients.

Such is a sketch of the course and spread of the epidemic as I observed it. While in 1867 I had the opportunity of ascertaining the spontaneous development of the disease in certain localities, I could in the present case obtain no information on this matter. On the other hand, the whole course of the epidemic, the occurrence of cases of this disease in single groups, or more frequently in a certain sequence, and its introduction into the prisons and the Charité, speak incontestably in favour of its great contagiousness.

In most of my cases, the communication of the fever was direct; the persons infected had come into direct contact with the sick. In most cases, a stay of some duration in rooms containing fever-patients seems necessary for infections; the infection was with special frequency imputed to the use of the same dormitories (as in the asylum for the homeless, the lodging-houses, prisons, &c.). Two of my hospital attendants, who had separate sleeping-rooms, escaped the disease; while the rest, who slept in the wards (even in the hospital barracks) were attacked. In single cases only (as in public officials) was a transient communication with the sick sufficient for infection.

It follows without doubt, that the diffusion of the agent producing the disease takes place entirely through the air; the assumption that it may also be carried by some other vehicle, as drinking-water, food, &c., cannot be proved. Through the air, the poison is carried over a rather wide extent; for instance, several cases occurred in the first story of one of the hospital buildings, in which the infection could only be traced to the patients in the ground-floor, inasmuch as all communication, direct or indirect, was entirely cut off. The reception of the poison by the healthy, seems probably to take place only through the respiratory organs.

The starting-point of the poison appears in many cases to be the expired air from the patients. It was, however, in a good number of cases communicated from the surface of the body; and this view is favoured by the fact of its communication at second-hand, in the case of the laundress who washed the patients' linen. We have already repeatedly observed similar cases, and Murchison adduces several analogous instances in his *Treatise on the Continued Fevers*. Murchison also describes some cases belonging to this category, of which the most important is his own illness from infection in the *post mortem* room.

These examples, the number of which may be increased by a closer investigation of the subject, appear to me to possess a certain importance, inasmuch as, in the case of small-pox and some other infectious diseases, they indicate that the morbid poison may retain its activity independently of the vital processes of the human organism.

With these cases is intimately connected the question as to the stage of the disease in which typhus is most contagious. According to my observations, very many cases of infection are traceable to patients, in whom, from the middle of the second week of the disease onwards, abundant desquamation takes

place either in branny particles or in larger patches. In this stage, when almost free from fever, several cases came into the prisons and hospitals here, and rapidly spread the fever.

In the next place, the blood seems to me to be highly infectious. In the absence of observations on man, I have inoculated ten rabbits with blood from patients in various stages of typhus. Seven of these animals, into which I subcutaneously injected blood from patients in the height of the fever, in the proportions of about half-a-drachm to a moderate-sized animal, died within three or four days; three rabbits, into which I injected blood taken from patients after the crisis had set in, remained intact. The *post mortem* appearances were on the whole negative; in two cases I found pneumonic foci, besides hyperæmia of the lungs, kidneys, &c.

As the experiments here mentioned might be regarded as imperfect, I consider it important to institute further and more extended researches on the subject, believing that a more consistent principle of classification for the so-called infectious diseases might be obtained from the results of inoculation than from vague notions on infection, contagion, miasma, &c. It is probably to the great confusion which prevails as to these terms, that the frequently contradictory results of observations made on different epidemics in different places are to be attributed.

A few words in conclusion on what is usually called 'personal predisposition.' Robinski, in his *Law of the Origin and Spread of Contagious Diseases*, has very ably criticised the numerous obscurities which have crept into the treatment of this subject. In regard to petechial typhus he expresses the opinion, derived from the observations of an epidemic at Tylitz in East Prussia, that predisposition to the disease is established by certain external injurious influences independently of previous conditions of the organism; thus, in Tylitz, those persons only took the disease through contagion, who had drawn their drinking-water from certain foul springs. The instances related, and the course of the Berlin epidemics in 1867 and 1873, do not support this idea. The manner in which the disease spreads, first seeking its victims among the lowest and most destitute stratum of the population, and then attacking those in better circumstances (medical men, public officials, etc.) as soon as they come into contact with the sick, indicates that the contagion may develop its activity in spite of the most various individual conditions. The poison seizes on every one who comes within the circle of its action, provided that he be exposed to it for a sufficient time, just as is the case with certain poisons that are gaseous or are suspended in the air. I will speak hereafter of the predisposition acquired through certain fixed personal conditions, as of age and sex, and of the application of these observations to hygiene.

ANATOMY AND PHYSIOLOGY.

PASCHUTIN AND EMMINGHAUS ON THE SECRETION OF LYMPH.—Tomsa, in his experiments upon this subject, collected the lymph from the testicle; but the quantity so obtained is by far too small to admit of exact observations being made. The researches of Hammarsten and Genersich have already shown that a plentiful supply of lymph can be

obtained from the isolated brachial trunk. Paschutin (*Arbeiten aus der Physiol. Anstalt zu Leipzig*, vol. vii.) selected the fore-limb of the dog for his experiments, partly because of the large quantity of lymph which can be obtained, and partly because the rootlets of the lymph-vessels arise here only in skin and muscle, so that the lymph obtained is not a mixture secreted by many different tissues, as would be the case if it were taken from the cervical trunk or from the thoracic duct. Further section and stimulation of the nerves and changes in the condition of the circulation can easily be produced in the area from which the lymph is obtained.

Genersich and Lesser have already shown that lymph is only poured out from the limbs, when these are either passively or actively moved. For a description of the manner in which the limb was moved, and for other details, we must refer to the original. For comparison, the lymph-vessels were emptied as far as possible by stroking the limb with the hand, before each period of the experiment.

1. With regard to the medium rapidity of outflow of lymph, Paschutin found that in all cases, with the duration of the experiment, the outflow of lymph was diminished, as long as the animal was kept under the same conditions. The lymph which flowed out on movement of the limb, was not derived from a store previously prepared in the tissues, but was actually secreted during the time of movement. With regard to the diminution of the rapidity of the outflow of the lymph, that was not due to exhaustion of the secreting apparatus; for, after the limb had been allowed to rest for a long time, no more lymph was obtained on resuming the pumping movement, than flowed out before the period of rest.

When the dog was poisoned with curare, the rapidity of secretion increased and reached its maximum in from 40 to 50 minutes, and then gradually diminished. The initial increase did not depend upon section of the spinal cord or brachial plexus, nor did the increase and decrease in the rapidity run parallel with the arterial blood pressure. One of the most striking results of these experiments was, that changes in the arterial blood-pressure had no effect on the excretion of lymph.

To determine the effects of temperature on the secretion of lymph, and to ascertain if the cooling which the animal underwent during the experiment, was the cause of the diminution of outflow, the animal was placed in a double-walled box, capable of being heated and kept at a constant temperature. The lowering of the temperature was not the cause of the diminution of the rapidity of outflow. On raising the temperature several degrees, the secretion was increased as long as the spinal cord was intact; but not so after its section.

2. Regarding the percentage composition of the lymph-serum in fixed residue, viz., albumen, in 84 different observations on lymph taken from different animals, and from the same animal at different times, the percentage composition of the lymph-serum clearly changed. The residue varied from 2.61 to 6.55 per cent. It increased with duration of the experiment, and became less when the absolute quantity of lymph increased. Similar results were obtained by Genersich on passing defibrinated blood artificially through surviving extremities. When in curarised animals, in consequence of any cause, the rapidity of outflow was increased, then the same proportions, with regard to the solid residue of the lymph, occurred just as in non-curarised animals,

but not with quite the same regularity. The lymph was sometimes tinted red with blood-corpuscles; nevertheless, in this case, the author was not able to find that the serum contained more albumen. In the first period of the action of curare, in which the amount of fixed constituents had clearly increased, the lymph was clearer than usual. The changes in the composition of the lymph afford an additional argument that the lymph is actually secreted during the time of observation.

H. Emminghaus (*Berichte der K. K. Gesellschaft der Wissenschaften, Math.-phys. Classe*) has studied the dependence of the secretion of lymph on the blood-current. In this case, the hind foot of the dog was employed, and the lymph-vessels were emptied artificially by the hand. No lymph flowed out generally, when the foot was quiet and at rest, in animals poisoned with opium, a fact already pointed out by Paschutin. [I have been able to verify this fact on non-poisoned animals.—*Rep.*] Section of the vaso-motor nerves produced no diminution in the secretion of lymph. In animals in which the sciatic nerve had been cut through, on ligature of the veins of the limb, the lymph flowed out more richly than before; and when the veins were kept tied, the quantity of lymph was from four to six times greater than before the ligature of the veins. Here swelling of the foot was observed. During ligature of the veins, spontaneous outflow of lymph was often observed. On removal of the ligatures, the after-effect of the stagnation showed itself in the increased excretion, for an hour or more. Not only did the lymph vary in quantity during ligature of the veins, but also in percentage composition and in colour. In normal experiments the lymph was generally clear; when the veins were tied, the colour became deeper red with the duration of the ligaturing. The percentage composition of the serum (in albumen as in Paschutin's experiments) diminished in fixed constituents in lymph obtained from limbs with the nerves divided and the veins tied. Ligature of the veins without previous section of the nerves increased the formation of lymph, but still only in a moderate degree.

From his experiments, Emminghaus concludes that obstruction to the outflow of blood from the limb is of much greater significance for the excretion of lymph than changes in the strength of the arterial current; and further that, when the limb is so placed that there is no hindrance to the outflow of blood from the veins, little or probably no lymph is secreted. New lymph, however, is formed immediately, either when the elastic equilibrium of the tissues is disturbed, or when any obstruction is offered to the outflow of the venous blood.

SOLUCHA ON THE FUNCTIONS OF THE SEMI-CIRCULAR CANALS.—Solucha has made experiments on this subject under Cyon's directions (*Pflüger's Archiv*, vol. viii.). The results obtained by Florens are already well known. Goltz ascribes the disturbance of movement produced by section of these organs, to the loss of the feeling of equilibrium; while Löwenberg regards the collective disturbance of movement as only consequences of a reflex stimulation of the nerves, which run in the membranous canals. The first point investigated by Solucha was, how far is an abnormal position of the head able to disturb the feeling of equilibrium of the animal, and so to produce the abnormal movements? The author confirms the experiment of Longet that mere section of the recti capitis postici majores et minores in the

dog renders the movements of the animal uncertain and insecure; the dog was unsteady on its feet, moved from side to side, kept the fore feet widely apart from each other, running was rendered difficult, &c. After five or six days the head generally assumed the normal position, and at the same time the walking became normal.

In a second series of experiments the author sought to give pigeons a peculiar position of the head, without wounding important parts—a position such as occurs on section of the canals, with the beak directed upwards, and the occiput towards the ground. On fixing the head to the breast in this position with a thread, the animals conducted themselves partly like those in which the horizontal as well as the vertical semicircular canals were destroyed. They could not retain their equilibrium, but moved to and fro on their legs, and always sought for a third point of support, made movements *de manège*, &c. As soon as the head was freed, the whole disturbance of movement disappeared, and locomotion became normal. This experiment also shows the importance of a normal position of the head, so that the animal can be able to preserve its position of equilibrium, as well as to execute co-ordinated movements.

In what way is the feeling of equilibrium dependant on a normal position of the head? The answer to this is, for the greatest part, to be sought in the changes which our conceptions of the position and distance of outer objects bear in relation to our own body. In pigeons, provided with spectacles with prismatic glasses, which produced artificial strabismus, disturbance of movement distinctly analogous to the higher degrees of that which occurs after section of the semicircular canals was observed. In some cases even 'pendulum movements,' corresponding to those seen on section of the horizontal canals, were noted. On section of one horizontal canal, the animal made several lateral movements of the head, beginning from the injured side, which soon ceased. On section of the corresponding canal on the opposite side 'pendulum movements' of the head occurred, and persisted very long. The violence of the movement increased from the beginning onwards, until they reached a maximum, when the animal lost its equilibrium, fell over, executed movements *de manège*, &c. In a few cases the animals recovered completely, but generally after four or five days the animal was found in a corner with the peculiar position of the head above described, and quite quiet, but when disturbed it resumed the pendulum movements, &c. Most of the animals died in from ten to twenty days. On section, the neighbouring parts of the skull were bloody and infiltrated, and the cerebellum was softened on the posterior surface and of a yellowish-green colour. The results of section of the smaller vertical canals were in some respects similar to the above, but differed in some important points. In section of the horizontal canals, the head moved in a horizontal plane from right to left, and back again; but in animals with cut vertical canals, the pendulum movements of the head occurred from above downwards and back again—then in a vertical plane. The subsequent movements of the trunk were also different, in that the whole trunk tumbled round on its transverse axis, and that mostly from before backwards.

On section of all four canals, violent movement of the head, resembling a screw motion, occurred immediately, accompanied by general swinging movement of the whole body.

That disturbance of equilibrium is a direct consequence of section of the semicircular canals is certain. 1. These disturbances occur immediately after the operation, and this when it is free from all other complications, as section of muscles, bleeding, injury to the cerebellum, &c. 2. The two sorts of movement, as well of the head as of the trunk, scarcely admit of a doubt, that the semicircular canals stand in relation to certain conceptions of space, and sensation. By means of the nerves which end in the membranous canals, a series of unconscious impressions are continually communicated, which lead to unconscious conclusions as to the position of the head in space. The semicircular canals contribute only indirectly to the retention of the equilibrium of our body, in that they direct the position of the head in space.

The chief results of these experiments are the following. 1. For retention of equilibrium, it is necessary that the animal has correct conceptions as to the position of its head. 2. The semicircular canals possess the functions of informing the animal, by a series of unconscious (auditory?) impressions, as to the position of his head in space, and each semicircular canal has an exact relation to a dimension of space. 3. The movements which occur after section of the semicircular canals are of three sorts: *a.* Disturbance in equilibrium, as the direct consequence of the injury; *b.* Swinging movements, as consequences of stimulations arising from abnormal auditory sensations; *c.* Consecutive phenomena, produced by inflammation of the cerebellum, occurring several days after the injury.

PRÉVOST ON THE FUNCTIONS OF THE LINGUAL NERVE.—Prévost (*Archives de Physiologie*, vol. v. pp. 253 and 375) has arrived at the following conclusions. 1. Ablation of both sphenopalatine ganglia does not cause in dogs and cats any sensible modification of the sense of taste in the parts supplied by the lingual nerve. 2. After section of the chorda tympani in dogs and cats, with cut glosso-pharyngei, the sense of taste was somewhat modified in certain cases, notably diminished in others, and completely abolished in one experiment. Prévost's experiments do not permit him to specify the part which the chorda tympani plays in relation to the function of taste, but he is inclined to accord to it only an accessory rôle. 3. Contrary to the old views of Vulpian and coinciding with the results of his recent researches, it is found that the chorda tympani carries fibres to the terminal branches of the lingual nerve as well as to the submaxillary gland. He has found, after section of the chorda in the cat, dog, rat, rabbit, and guinea-pig, degenerated nerve-fibres in the terminal branches of the lingual nerve, as well as in the mucous layer of the tongue and in the submaxillary gland. 4. The chorda tympani has not a trophic centre in the papillæ of the tongue; and if the submaxillary ganglion act on it as a trophic centre, this influence ought to be very limited. After section of the chorda tympani in the ear, the central end of this nerve (on the side of its facial emergence) remains healthy.

WILLIAM STIRLING, D.Sc., M.B.

BAUME ON THE ERUPTION OF THE TEETH.—Herr Robert Baume, writing on the eruption of the teeth (*Vierteljahrsschrift für Zahnheilkunde*) says that, according to his own observations, he cannot believe that the growth of the fang forces the tooth out of the alveolus. He inclines to the view that the eruption is due to changes in the alveolus; though

even on this point he is not prepared to agree entirely with other writers.

Herr Baume speaks in the first instance of permanent teeth in the lower jaw only, and afterwards brings forward evidence against the theory of apposition growth. 1. There may be lengthening of the tooth after the fangs are fully developed, in those cases where the antagonising teeth have been lost (that is, a tooth may be raised above the level of the adjoining teeth). 2. In cases of retarded eruption, the fang is fully developed in the body of the alveolus; and yet, when the mechanical obstruction to its eruption is removed, years after the fang has been formed,—the tooth takes its proper place in the jaw. 3. In some instances, the eruption of the teeth may take place without the fangs being developed, as in those cases where children are born with teeth already cut. Here, however, there may be as well, teeth with fairly developed fangs and crowns; but when the fangs are not developed, we generally find the crowns imperfect, so that their appearance conveys the impression that their eruption has occurred before they were fully formed and dentified. 4. Lastly, upper molars move forward in the jaw (from the posterior position which they occupy) before there is any trace of a fang, thus showing that the movement cannot be dependent upon the growth of the fang.

Baume next proceeds to show, by measurements of macerated jaws, that the apposition theory is not tenable. If a lower jaw be taken, from which the facial wall has been cut away, so that the permanent teeth may be seen in their places below the temporary set, it will be found that the measurement (in most cases) of the distance between the floor of the alveolar chamber in which the permanent tooth is placed, and the upper edge of the jaw, is 1·5 centimètres (6 inch). This would nearly correspond with the length of a fully developed fang (the same class of tooth being taken); but on eruption it is observed that, although the crown has travelled 15 centimètres before taking its position on the masticating level in the jaw, the fang has grown only a few millimètres; and the space between the first points of measurements, namely, the floor of the alveolus and the upper edge of the jaw, is filled up by the deposition of bony matter in the alveolus, and not by the further development of the fang (beyond the extent just mentioned).

Thus the length of the fang that is developed does not correspond with the distance that the crown has travelled; and these facts favour the view, that there is another influence at work causing eruption of the teeth than the growth of the fangs. Hermann (quoted by Baume) considers that the alveolus is narrower at the time immediately preceding eruption; but Baume considers that this is not the cause of the eruption, since the alveolus does not press upon the tooth. In fact, the space in the alveolus for the tooth is greater than is required for the crown and portion of the developed fang alone; so much so that, in a dried specimen of the jaw, the tooth is movable; and in the recent state it is but loosely held by its alveolar surroundings.

If the crown be through the gum, the hold which the alveolus has upon the neck of the tooth is very slight; but this space is less than it was immediately before the eruption. If the tooth be removed in this state, the alveolus will be found lined with a soft reddish tissue; which, when seen microscopically, will be recognised as formative matter. Beneath

this the alveolus may be felt, in some cases, roughened; and if a macerated jaw be taken, there will be found in the alveolar chamber a roughened and porous surface, broken through by many smaller and larger openings. The alveolus does not show the character of lamellæ, but points to the fact that here a very rapid development of bony tissue has taken place.

Baume attributes the development of this bone to the 'fibrous tissue' that lines the tooth-socket, and which not only rests on the surface of the alveolar chamber but pierces its walls. The author further considers that this 'fibrous tissue' is in intimate relation with the pulp of the growing tooth; and from the fact that this 'formative matter' is placed between the tooth and the walls of the alveolar chamber, he concludes that, on the one side, the eruption of the tooth is due to the growth of the formative matter, and on the other, that the rapid development of new bone within the socket is due to the presence of this same fibrous tissue. Hence, the narrowing of the bony alveolus is not the cause, but the consequence of the forward movement of the tooth, since the bony formation follows the space that is afforded by the eruption of the tooth. After criticising the views held by Tomes and Wedl, with regard to the development of the fangs and the growth of the jaw, the author explains why the first dentition is painful and the second dentition accomplished with but comparatively slight inconvenience (the wisdom-teeth only excepted). The main obstacle to the eruption of the deciduous teeth he considers to be the gum; and by the fact that the second teeth have as a rule no gum to pierce, he explains the ease with which their eruption occurs.

OAKEY COLES.

SMEE ON THE COAGULATION OF THE BLOOD.—Mr. Alfred Smeë (*Journal of Anatomy and Physiology*, June 1873) thus sums up his conclusions regarding the coagulation of blood. 1. The coagulation of fibrine is a physical act, and cannot be considered to be in any way identified with a vital property such as the contraction of muscular fibre. 2. The coagulation of fibrine depends upon and is regulated by the same laws which cause all insoluble colloid substances, whether organic or inorganic, to become pectous. 3. The soluble or fluid form of fibrine ought to be regarded as its allotropic form; and as in the case of its colloid analogue, silicic acid, its presence in the blood in the fluid condition depends upon the physical conditions under which fibrine is found in the living body.

T. LAUDER BRUNTON, M.D.

MEDICINE.

FREY ON TEMPORARY PARALYSIS IN CHILDREN AND ADULTS.—Dr. Anton Frey has published in the *Berliner Klinische Wochenschrift* for January 3, 10, and 17, a paper, founded on observations in Dr. Kussmaul's clinic at Freiburg, on temporary paralytic affections in adults, resembling the temporary spinal paralysis of children, proceeding apparently from myelitis of the anterior cornua.

After giving reasons for preferring the title of 'infantile paralysis' (Heine) to that of 'essential paralysis' (Rilliet and Barthez), the author describes the distinguishing features of the complaint. He main-

tains that the fundamental lesion is a very acute myelitic process attacking a more or less extensive region of the anterior cornua and the adjacent anterior and lateral columns [but he does not seem to be aware of the recent researches of Westphal and Bernhard on the implication of the large ganglion-cells.—*Rep.*] He then describes some cases of spinal infantile palsy which recovered entirely without leaving any bad effect, and which he calls 'temporary spinal infantile paralysis.' The name was first employed by Kennedy (*Dublin Journal of Medical Science*, 1860) who distinguished between 'temporary peripheral' and 'temporary central' cases. This temporary palsy resembles the ordinary form in the character of the paralysis, in the atrophy of single muscles or of groups of muscles, and in the retarded growth or deformity of one or more limbs; but it differs in the ultimate course. As a rule, it begins with feverishness, deafness, delirium and convulsions. In a short time, over night or in the course of a few days, the muscles become palsied to a maximum degree, sometimes in both extremities at once, sometimes in only one, oftenest in an arm; and they lose more or less completely their faradic excitability. When the voluntary power over the muscles has returned, the susceptibility to faradic and galvanic stimulation may be long absent. Rosenthal showed this last fact very clearly, and contradicted Duchenne, who said that the gravity of the prognosis was in direct proportion to the atrophy of the nerves giving rise to the lesion, which atrophy could only be found out by electrical investigation. Rosenthal affirms that in many cases, after six or nine months from the date of the affection, the electric excitability of the invaded muscles is *minus*, though voluntary movements are again present. In temporary palsy the limb does not, as a rule, become emaciated, whilst at times it does so remarkably; and yet both nerve-conduction and contractility return. Volkmann has seen instances of temporary palsy where the nerve-conduction was renewed to its full extent, but the growth of the limb was impeded.

The prognosis of complete cure is inversely as the duration of the paralysis. The duration of temporary paralysis is generally from one to two months; palsies which after a course of six to nine months do not seem to improve, must be regarded as lasting. The better the reaction to faradic currents remains, the better is the prognosis; but, on the other hand, loss of electrical excitability, at least in the first six or nine months, is not absolutely against a favourable issue; for the return of muscular contractility is not bound up with that of electrical. The smaller the extent of muscular atrophy, the more favourable is the prognosis; yet moderate atrophy does not preclude restitution of contractility and voluntary power.

One hypothesis of the pathological condition in this temporary disease is a dilatation of the small vessels with moderate collections of coloured blood-corpuscles in their interior, and perhaps of white corpuscles in the lymph-sheaths, swelling of the neuroglia from oedema, and increase in size of the stellate elements with copious proliferation of nuclei, swelling of the ganglion-cells and nerve-tubes (especially of the axis-cylinder), as seen in fresh cases of traumatic and spontaneous myelitis. These effused products, however, never soften or disintegrate; they are reabsorbed. Temporary spinal palsy is therefore a very acute polio-myelitis ending in resolution of the earliest

stages of inflammatory hyperæmia and serous swelling.

Duchenne de Boulogne, in his last edition, says that in adults spinal palsies occur which are absolutely identical with the 'atrophic paralysis of youth'; and that they occur from an identical lesion, viz., acute inflammatory atrophy of the cells of the anterior cornua; that it is met with in persons up to forty-five years [of age]; that it generally comes on from cold, and does not imply hereditary taint; the only exception to the analogy being that the osseous system does not in adults suffer so great atrophy as in children. It might be confounded with the paralysis occurring after diffused myelitis; but, in the latter, sensibility is affected, the bladder and rectum are paralysed, and sores form on the sacrum. Kussmaul agrees with him, and relates three cases supporting this view, the practical result of all being a favourable prognosis for similarly diseased persons, in opposition to Hasse's view that the complaint is dangerous to life. Brown-Séquard's experiments showed that, after severe temporary injury to the cord, entire restitution of function as regards influence of the will and electrical excitability could follow. Cold-water applications to the head seem to relieve the febrile symptoms in the first stages; but the later symptoms are most relieved by electricity and galvanism.

T. C. SHAW, M.D.

EBSTEIN AND MÜLLER ON THE TREATMENT OF GLYCOSURIA WITH CARBOLIC ACID.—The pathology of diabetes is confessedly so obscure, that there can scarcely be said to be any rational method of treatment. The authors of an interesting paper in the *Berliner Klinische Wochenschrift* for December 8, suggest that, in very many cases, abnormal processes of fermentation may be the cause of the glycosuria, or, at least, permit its occurrence. For example, there is a widely received opinion that one cause of glycosuria is increased sugar-formation in the liver, either by actual increase of sugar, or formation of sugar-forming ferments or zymotic materials. If then we can find a medicine which may check the formation or the action of these fermenting principles, our therapeutic efforts are likely to be successful in a certain class of cases. For this object their previous knowledge and experience of carbolic acid (the authors say), made them believe that this medicine would be useful in diabetes. Carbolic acid, or bodies of nearly similar constitution, had been used for this purpose, particularly creasote (Krupp's translation of Dr. Prout *On Diseases of the Stomach and Urinary Organs*, p. 143.) Dr. Prout, indeed, says that creasote diminishes the quantity of urine, but not the percentage of sugar. Griesinger (*Studien über Diabetes*, *Archiv für Physiologische Heilkunde*, 1859, p. 51) narrates a case of mellituria in a medical student, in which creasote had no effect, though his urine became free from sugar as soon as he became too busy to examine it. Latterly, creasote has scarcely been mentioned in the treatment of diabetes, and Jul. Vogel (*Virchow's Handbuch der speciellen Pathol. and Therapie*, vol. vi. part 2, p. 507) says that it does not help at all in the cure of the disease. But carbolic acid appeared to the authors to be far preferable to creasote, as being more definite in composition, less unpleasant in smell, and tolerated, as will be seen in the sequel, in far larger doses. The first case in which they used it was strikingly successful.

A dentist, aged forty-six, began the treatment on February 26th of last year. The diabetes was not hereditary. Two cousins had mental disease. He could not remember any special previous complaints. He had been seven years in the army, in actual service. The beginning of the diabetes dated from the preceding October. He ascribed it to family troubles, and pecuniary anxieties. Thirst and appetite were markedly increased, and the urine amounted to 8 litres ($1\frac{1}{2}$ gallons nearly) in twenty-four hours. His bodily weight had much decreased. From 204 lbs. he had fallen to 170 lbs. when weighed six weeks before, and he was lighter now than then. Sexual power was much diminished. The saliva was glutinous, but 3 grammes of perspiration collected on one occasion were free from sugar. His urine on February 26th had a specific gravity of 1.032, with 2.86 per cent. of sugar. He was ordered to take six or seven tablespoonfuls daily of a solution of carbolic acid (1 in 300). In three days he had used 1 gramme ($15\frac{1}{4}$ grains nearly). On March 4th the urine had a specific gravity of 1.013, and was free from sugar. The patient had taken half a drachm of carbolic acid. Thirst was less; the quantity of urine was not increased; he did not now get up at night to pass it. On March 4th, 5th, and the morning of the 6th the patient took no carbolic acid, and the urine, whose specific gravity ranged from 1.022 to 1.035, contained from 0.5 to 3.3 per cent. of sugar. He now resumed the carbolic acid, and on March 8th the specific gravity was 1.022, and the sugar only 0.2 per cent. He had no thirst; the appetite and quantity of urine were normal. After March 12th there was no more sugar to be found; the strongly acid urine always contained uric acid. On March 17th the urine passed in twenty-four hours was only $30\frac{1}{2}$ ounces. His bodily weight increased gradually. On April 27th he weighed 173 lbs., and on May 26th, 185 lbs., and appeared perfectly well. He left off the carbolic acid on March 31st. In July there was a slight relapse; but three days of the carbolic-acid treatment set him all right again. It should be stated that his gums were spongy, and bled on both occasions. This patient was on a mixed diet all the while.

The authors do not propound this as an universal remedy; indeed, they give a case of a merchant, aged twenty-three, whose urine had a specific gravity of 1.035, with 4.85 per cent. of sugar on August 2nd. The urine passed at night next day had a specific gravity of 1.045, and contained 6.1 per cent. of sugar. He took 3 grammes of carbolic acid without any benefit.

The authors give a third case, in a merchant, aged fifty-four, who had suffered eleven years from glycosuria. The disease was not hereditary, but commenced with severe mental distress. One sister died with mental disease. The percentage of sugar varied of late years from 2.5 to 5 per cent. In 1868 he had an apoplectiform attack, and his speech became indistinct. Then ensued a paralysis of his muscles of deglutition, so that he was obliged to be fed with a tube for ten weeks; and simultaneously he had considerable alterations of sensation in the right face and left half of the body. Motility remained intact. He partially recovered, but with some disturbance of sensation in the regions described; for example, cold objects felt hot to his left hand, while his right hand felt a peculiar numbness, which bothered him in shaving. He had been

eight times at Carlsbad, always with temporary benefit of a striking nature, but he always relapsed when away from that place. The quantity of urine was now $4\frac{1}{2}$ to $5\frac{1}{2}$ pints in twenty-four hours. The specific gravity was 1.043, and the sugar 5 per cent. On April 8th there was a sediment of uric acid. In twenty-one days he took 7 grammes (108 grains nearly) of carbolic acid. During this time the sugar varied from 3.1 to 4.3 per cent. On leaving off the medicine, the quantity rose from 4.5 to 4.8 per cent. He then went to Carlsbad. On arriving there, the sugar was 5.75 per cent. After six weeks there, it was only 1.43 per cent. On leaving Carlsbad he resumed the carbolic acid, and took $7\frac{1}{2}$ grains daily. With this and a flesh diet, the sugar was kept down, and on September 2nd there was no sugar in the urine. On his leaving off the carbolic acid, the sugar again returned; whereas, while taking it, he not only suffered no inconvenience, but kept the sugar down to a few tenths per cent. The authors' formula is as follows. A gramme of crystallised carbolic acid is dissolved in 250 grammes of distilled water, and 50 grammes of peppermint water. This is all taken in three days, so that the patient takes six or seven tablespoonfuls daily.

The following formula will be nearly identical:—

| | |
|----------------------------------|------------|
| Crystallised carbolic acid . . . | 16 grains. |
| Peppermint water . . . | 2 ounces. |
| Pure water to . . . | 10 ounces. |

A tablespoonful to be taken six or seven times daily.

In this last case the daily dose of crystallised carbolic acid was $7\frac{1}{2}$ grains.

In a postscript the authors state that the dentist mentioned above came again on October 29th, after a fortnight's return of his old symptoms. He was completely impotent; but otherwise better. His weight was 195 lbs. His urine had a specific gravity of 1.030, and contained 2.25 per cent. of sugar. After the use of one gramme ($15\frac{1}{4}$ grains) of carbolic acid, in the manner above described, the sugar again vanished completely from the urine.

[This paper of Drs. W. Ebstein and Julius Müller is both pleasantly and modestly written. I have, for the sake of condensation, omitted several deprecatory expressions, which show the caution with which the writers propound their views.—*Rep.*]

FRIEDREICH ON CANCER [?] CURED BY CONDURANGO.—The *Berliner Klinische Wochenschrift* for Jan. 5, 1874 (no. 1) has an article by Professor N. Friedreich, of Heidelberg, recommending the use of condurango, and giving the following case in illustration. Jacob S., aged fifty-four, a day-labourer, became a patient of the hospital on January 10, 1872. For ten months he had complained of loss of appetite and 'weight' at the pit of the stomach, especially after meals. This afterwards increased to absolute pain, which radiated towards the left shoulder. Of late he had had stabbing-pains in the left half of the epigastrium. Vegetable diet increased his pain, and often induced vomiting of a clear, watery, acid fluid. No blood was vomited. His strength and nutrition declined daily. He was very cachectic and anæmic; his naso-labial lines were very strongly marked. He was much emaciated, and extremely weak. The skin was dry and harsh. There was increased resistance in the epigastric region, which was somewhat distended. Between the xiphoid process and the umbilicus, especially towards the left, and overlapping the left border of

the rectus muscle, it was easy to make out hard nodular tumours connected with each other, very sensitive to slight pressure; and in deep breathing a kind of creaking peritoneal rub could be clearly felt. The tumour was dull on percussion. The left lobe of the liver was enlarged to three fingers' breadth below the margin of the ribs; its surface was smooth, and not tender or painful. The left lobe was continuous with, or at least undistinguishable from the tumour noted above. The left supraclavicular fossa was filled with a mass (*paquet*) of swollen, hard, but painless lymphatic glands about the size of hazel-nuts. The spleen, lungs, and heart were normal, but the action of the latter was very feeble. The bowels were confined. The tongue was slightly coated. He had occasional nausea. The urine was pale yellow, slightly turbid, of specific gravity 1.014, and free from albumen. Once now and then in the evening, there was slight and transitory elevation of temperature ($38^{\circ}\text{C.} = 100.4^{\circ}\text{F.}$), otherwise it was normal, sometimes subnormal (to $36.2^{\circ}\text{C.} = 97.1^{\circ}\text{F.}$). The diagnosis arrived at was cancer of the stomach, implicating the epigastric and supraclavicular lymphatic glands. Bicarbonate of soda with muriate of morphia was ordered (in form of a powder) thrice daily. Fluid nourishing diet was given. On Jan. 23 he left the hospital, without much change, except alleviation of the epigastric pain, and loss of the peritoneal friction-sound. On the 31st he came back, having again been attacked with new and more severe pains. There was also more fever (temperature in the morning $38.4^{\circ}\text{C.} = 101.1^{\circ}\text{F.}$; evening, 39.2° to $39.6^{\circ}\text{C.} = 102.5^{\circ}\text{F.}$ and 103.3°F.), but after a few days, when the pain decreased and a peritoneal friction-sound again appeared, the temperature again became normal. Occasionally the epigastric pains would become more severe for a day or two, and febrile symptoms set in. The lower part of both legs on readmission was somewhat cedematous, but this disappeared with rest in bed. There were occasional sediments of uric acid in his urine. On Feb. 18, he was ordered the following mixture: *R* Condurango bark four drachms; macerate for twelve hours with twelve ounces of distilled water; then boil down to six ounces, and strain; one tablespoonful to be taken twice a day.

This medicine was regularly taken and well-borne. His diet was carefully regulated and entirely liquid (milk, broth, raw eggs). As early as March 2, the epigastric tumours appeared smaller, and the pain in that region, as well as the tenderness on pressure had diminished. On March 10, it was evident that the supraclavicular glands were decreasing; and from day to day this went on. On March 17, the epigastric tumours were indubitably smaller, and less nodulated. From March 22 he took one-and-a-half tablespoonfuls of the condurango mixture three times a day. During March he gained strength, and improved in every way. His appetite improved; his pains and dyspepsia vanished; the bowels acted spontaneously; and at the end of that month there was no increased resistance in the region of the stomach; only, left of the median line, and near to but below the xiphoid process, there was still a small hard uneven tumour to be made out with some difficulty, and from day to day this diminished. The rest of the abdomen was soft and free from pain. In the middle of April the epigastric tumour had left a residuum of the size of a hazel-nut. The patient was better in every respect, and took daily walks. During May he left the hospital for a few days, and on

June 15 he was discharged—perfectly well, except that on deep palpation, the little hard round, hazel-nut like painless tumour was still to be felt to the left of the xiphoid process. Since then, repeated examinations have convinced Dr. Friedreich of the permanence of the cure.

He remarks that there can be scarcely any doubt of the diagnosis; the long combination of the symptoms, the extreme emaciation, and the fact of the tumours being plainly felt, the peritoneal friction-sound the enlargement of the supraclavicular glands, all seem to him to point to cancer. The absence of symptoms of stenosis of the pylorus pointed to a part of the stomach remote from this as the seat of the disease. Believing this he thought it right to try condurango bark, which is a popular remedy amongst the inhabitants of Ecuador (South America) for cancerous and other chronic diseases, and attracted such attention that a commission was sent to Ecuador by the United States' Government in 1871, and an independent medical committee investigated its action in New York (Drs. Buck, Markoe, and Draper); at the Middlesex Hospital Messrs. Hulke & Morgan tried it, as well as another Englishman, Dr. Pearce. In Italy Drs. De Sanctis and Palmesi also made trials of it. Though none of them confirmed the original accounts of its success, they all seemed to think it had some soothing and other beneficial effects.

In a footnote Dr. Friedreich adds an account of condurango (*Equatoria Garcinia*, or *Gonolobus Cundurango*), which states *inter alia*, that the bark produces in animals energetic topical effects (convulsions, and increased reflex irritability, or even death). The subcutaneous application of the decoction induced apathy, torpor, and afterwards tetanic convulsions in frogs. Shortly before death nervous irritability was destroyed, but that of the muscles remained intact. In other frogs, death occurred without spasms. The heart stood still, but could still be stimulated to contract. No signs of irritability could be detected in the parts to which it was applied. The decoction is said to succeed when the infusion fails.

Vulpus gives an analysis stating that the bark contains tannin, sugar, albumen, starch, malic, oxalic and tartaric acids, as well as two peculiar resins, and a bitter crystallisable material which appeared the only active medicinal principle. Dr. Friedreich has tried the same remedy in a few other cases, with less success, which he ascribes to the impatience of the patients, who discharged themselves from his wards.

[The reporter has no prejudices either for or against condurango. He perfectly agrees with Professor Friedreich that there is no *à priori* argument against the existence of a drug which should be as specific against cancers as iodine is for bronchocele, or mercury for syphilitic gummata and the like, and which might induce retrograde metamorphosis of the cellular elements of malignant tumours. He agrees further with the professor that condurango deserves further trials. But he cannot admit that this was an undoubted case of cancer of the stomach. The very clear, candid, and faithful report of the case supplies to the mind of the reporter very grave reasons for doubt. It does not appear that there was any special reason for considering the tumours cancerous, except the character of the pain and the amount of the cachexia. The reporter has seen cases closely resembling the one recorded, which were undoubtedly syphilitic, and not cancerous; and he has been informed by emi-

nent surgeons that many such tumours, masses of glands, and the like, have been removed by the knife, or otherwise, under the erroneous impression that they were cancerous. The one-sidedness of all the 'tumours' is a common feature of tertiary syphilitic lesions; and the febrile exacerbations, though slighter than they often are, agree very well with this view of the case.—*Rep.*

W. BATHURST WOODMAN, M.D.

SURGERY.

BRYANT ON POPLITEAL ANEURISM TREATED BY THE INTRODUCTION OF HORSE-HAIR INTO THE SAC.—Mr. Bryant (*Guy's Hospital Gazette*, Dec. 6) has quickly followed the practice of Levis, in a case treated at Guy's Hospital on Nov. 25. The aneurism was of some standing, its presence having been recognised six or seven months previously by the patient, who was an unfortunate subject for the ordinary modes of treatment, since he suffered from mitral disease of the heart, and undoubtedly had very bad arteries; and, although no other aneurism had been discovered by a careful search, still one might exist unknown, for instance in the thoracic cavity. Pressure had already been tried for a fortnight or three weeks off and on; but the only effect of this had been to harden the aneurism, showing that some coagulation had taken place on the walls of the sac, but not sufficient to cure it. He was unable to bear any further pressure. During the pressure he suffered from epistaxis, but this was not due to the aneurism, but rather to the mitral regurgitation. However, it pulled him down a good deal, so the treatment by ergot was tried, as recommended by Langenbeck; but, though it improved the pulse, and stopped the epistaxis, the aneurism was evidently increasing in size; indeed, during the last three days it had become half as large again as it was when the man was admitted. Mr. Bryant introduced a very fine trochar and cannula, and, withdrawing the former, he passed through the cannula about eighteen feet of horse-hair. This was accomplished in a few minutes, three threads of hair being pushed in together. Blood flowed through the cannula, though the artery was compressed, till the end of the operation, when it ceased; and, when the cannula was withdrawn, there was no bleeding from the wound, which was closed with some of Mr. Bryant's mackintosh strapping. The leg was covered with cotton-wool, and the patient was removed to the ward, the aneurism still pulsating, but not so strongly. The patient has since died.

BILLROTH ON GRANULATING FLAPS IN PLASTIC OPERATIONS.—*The Berliner Klinische Wochenschrift* for November 3, contains a short abstract of a paper by Billroth on a method of obtaining as long granulating flaps as possible in plastic operations. Dr. Billroth, from large experience in operations for epispadias and for extroversion of the bladder, considers that it is sometimes desirable to obtain very long flaps for the covering in of the bladder. As the base of these flaps, in the localities concerned, often could not be extended beyond a limited breadth, and since the thin tegumental tissues readily become gangrenous, he first of all marked out and cut the edges of the flaps, and dissecting them off, left them attached to the body by narrow bridges. He next

laid lead-foil beneath the tissue thus separated, and gently constricted one end of the flap by a ligature. Separation followed, and the under surface of the flap granulated in about six or eight days. In order that such granulating flaps may become fixed in their new position, it is necessary to freshen their edges superficially. Dr. Billroth has, by this method, obtained flaps an inch and a-quarter broad by four inches long, under circumstances in which a freshly formed skin-flap from the abdominal wall would undoubtedly have become gangrenous. He has applied this method in other parts of the body with equal success.

PLAGGE ON TRAUMATIC ANEURISM OF THE FEMORAL ARTERY, TREATED BY INJECTION OF ERGOTIN.—In *Betz's Memorabilien*, vol. xviii., part 10, Dr. Plagge of Darmstadt records the following case. A man was accidentally stabbed with a small bread-knife about two finger's breadth just beneath Poupart's ligament, and the result was a traumatic aneurism. An icebag was applied, and digitalis and morphia administered internally. The tumour however increased, and two days afterwards, a solution containing $2\frac{1}{2}$ parts of extract of ergot and $7\frac{1}{2}$ each of spirit of wine and glycerine was subcutaneously injected on the inner side of the tumour, and the ice-bag assiduously applied. In the evening of the same day the swelling had become harder and more limited. On the next day the aneurismal thrill had lessened. For the next three weeks these injections were continued. At the end of this period, there was visible diminution of the impulse, swelling and sensibility to pressure; and the patient could bear slight pressure for an hour at a time thrice daily, and the ergot injection was discontinued. A fortnight later, the impulse was scarcely perceptible, the tumour hardly was larger than a hen's egg and not very sensitive. Roser's tourniquet was applied, and the man was sent home. A month later, he presented himself with the aneurism cured.

Dr. Plagge concludes from this case that the subcutaneous injection of ergot materially assists in the lessening of large aneurisms, the radical cure of which would only be effected by ligature or compression. In this case, ligature (of the external iliac) would probably have terminated fatally. The plan of treatment by ergotin was recommended by Langenbeck.

BÖTTGER ON THE CONSERVATIVE SURGERY OF THE SHOULDER-JOINT.—Dr. Böttger of Dessau reports at some length the following case, as a contribution to conservative surgery (*Betz's Memorabilien*, vol. xviii. part 10). The patient was wounded at Metz, on August 18, 1870, by a bullet which passed through the shoulder-joint, and disarticulation was proposed at Ars, but abandoned on account of his feeble condition. On August 26 he came under Dr. Böttger's care, at Dessau, with a profuse discharge of fetid pus from a sloughing-looking wound with everted edges, on the anterior aspect of the axilla. There were great swelling and pain in the shoulder-joint, and in the whole upper arm. The bullet had penetrated close to the lesser tuberosity of the humerus, and had passed obliquely inwards and upwards through the joint, smashing the head of the bone just beneath its articular surface, and emerging behind. On passing the finger into the wound, three or four fragments of bone could be felt, with much loss of substance. The patient was much reduced, and, from symptoms of pain in other parts, there was a fear of pyæmia. Dr.

Böttger, therefore, did not consider operative interference, either by resection or disarticulation, admissible, and therefore determined on attempting conservatism; 1. to raise his prostrate strength; 2. to subdue the local inflammatory action; and 3. to prevent the absorption of the fragments. The wound was carefully syringed with warm chamomile and carbollised lotions, and simply bound up with charpie; and for the present the laying bare of the cavity (the source of the copious flow of pus) was omitted on account of the possibility of hæmorrhage and of the prostration of the patient. Wet compresses were applied, and fastened with a bandage; phosphoric acid, raspberyyade, and *bouillon* were ordered; and the following day bicarbonate of potash and *nux vomica*. The case went on well, the patient improving by degrees, and taking food well; and by September 9 the track of the wound began to get clean, but yet discharged a little pus. A small piece of compressed sponge was introduced into the wound, with the idea that, once soaked with the existing secretion from the wound, it would prevent the retention of the discharge; that, by the removal of the stagnant pus, the production of granulations would be favoured; and that it would prevent early closure of the canal. In a fortnight's time slight passive motion was commenced. The process of exfoliation of the bone, and of the healing by granulation of the track of the wound, was observed by means of Kramer's ear-speculum, which could be easily introduced without any pain. By November 25 the region of the shoulder had become rounder and more natural in shape; and, notwithstanding that the elevator muscles of the arm had been deprived of their insertion, it could be raised to nearly a right angle, and lateral motion was very free.

Dr. Böttger contrasts this case with one in which a similar wound had been inflicted, and where resection of the head of the humerus by Nélaton's method had been performed, with a result by no means satisfactory, as there was great shortening of the limb, with the retention of very little power over it.

[The case reported by Dr. Böttger is, in some respects, similar to one observed by the reporter in civil practice, where a revolver bullet, entering the axilla obliquely, had completely smashed the head and neck of the humerus. The ball, which had just missed the axillary artery, was extracted and the fragments of bone adjusted, the limb carefully supported by splints, and the wound kept very clean; the patient recovered with nearly perfect movement of the arm. Of course the case reported is the more remarkable from its accessories, and from the want of immediate attention.—*Ref.*]

EDWARD BELLAMY.

BARDINET ON A NOVEL METHOD OF REDUCING PARAPHIMOSIS.—M. Bardinet of Limoges (*L'Union Médicale*) describes the case of a young man who converted the congenital phimosis, of which he was the subject, into a paraphimosis. This was followed by swelling and pain. At the expiration of twenty-four hours, M. Bardinet was consulted, after one of his *confrères* had failed in an attempt at reduction. This surgeon found the preputial ring tightly constricting the corpora cavernosa, and the glans penis very swollen and of a deep red colour. He tried the ordinary methods of reduction for some time, but failed. Then the idea struck him of acting on the pre-

putial ring by its deep aspect as well as by its external surface. It occurred to him that, if he could introduce a lever between the tight ring and the corona glandis, he might raise the ring and depress the corona, the prominence of which formed the obstacle to be surmounted. In the absence of any surgical instrument, he made use of two hair-pins. These presented two levers, which were at the same time blunt, light, but sufficiently strong, and of a size in proportion to the separation of their branches. By bending down the glans and drawing the preputial ring towards the pubes, he found that he could easily glide the blunt rounded end of one of the hair-pins between the preputial ring and the body of the penis. It not only entered without trouble, but could be pushed on to a sufficient depth. Encouraged by this, he inserted, as soon as possible, the second pin in the same manner. The two pins being well fixed, he began a seesaw movement, with the three-fold advantage of lowering the prominence formed by the corona, of raising the preputial ring, and of establishing before it an inclined plane, on which it might smoothly slide. He next practised the ordinary method of reduction, and, after a few efforts, succeeded completely.

He thinks that in the majority of cases it would be as easy to insert the lever as it was in his case. He believes that adhesions which might oppose the use of the lever are less frequent than they are represented to be. He draws attention to the fact that the whole prepuce does not become the cause of the strangulation, but the constriction is by the preputial ring, which corresponds to the union between the mucous membrane and the skin. That ring, very strong and resisting, in some cases acts like a cord. Behind the ring, the prepuce is supple. The author suggests several other things which might be employed instead of the hair-pins, viz., a spatula, the handle of a small spoon, or any blade with blunt edges. One need not limit oneself to the lever action only; a dressing forceps (*pince à anneaux*) combines a dilating power with the lever; the forceps with three branches, made for dilating the wound in tracheotomy, might be still better. Blunt round flat hooks, elevators of the eyelids, might be employed. In introducing blunt hooks, they should be applied on the back of the penis; the beak should be slid under the constricting ring from before backwards; they should then be made to describe a half-circle forwards, and by that movement the preputial ring would be firmly caught. With two hooks a triple result might be accomplished: dilatation of the ring, traction from behind forwards, and depression of the corona, over which the prepuce is to be brought.

[The simple plan resorted to by M. Bardinet seems admirably adapted to the nature of the case, and is a valuable addition to the old plan of reduction. However, it is obvious that it can only be applied in a limited number of cases, viz., those which are seen by the surgeon within the first two or three days after the accident.—*Ref.*]

JOHN CROFT.

SYPHILOGRAPHY.

ALBUTT ON THE OBSCURER NEUROSES OF SYPHILIS.—Dr. Clifford Allbutt contributes to the third volume of the *West Riding Lunatic Asylum Medical Reports*, an interesting paper on the Obscure Neuroses of Syphilis. Under this head he includes those disorders which are generally con-

sidered functional, 'those which depend, so far as we can tell, upon tissue changes which are not obvious, or to be discovered by the microscope.' The following is a rough classification of them.

1. 'Intellectual and emotional disorders, such as dementia, depression, fever, melancholia, delusion, morbid susceptibility, irritability of temper, "loss of tone," and so forth.
2. 'Sleeplessness.
3. 'Motor defects, such as tremor and muscular debility, perhaps epilepsy.
4. 'Neuralgia, occurring in both superficial and visceral nerves.
5. 'Intestine defects, such as anæmia, &c.'

Dr. Allbutt says that these phenomena 'are often fugitive or unsettled in position, and when cured, if they relapse, it is often under new forms.' The prognosis in these cases is much more favourable than in optic neuritis, or in neuritis of the third, sixth, or other cranial nerves. 'With a little care and patience we may almost promise the patient that he shall be cured, and the cure is generally as permanent as it is easy. A course of mercury, gently prolonged, a month at Aix, or large doses of sarsaparilla, will rarely fail to dismiss the evil for once and all, so far, at least, as that particular manifestation is concerned.'

Dr. Allbutt cites some cases illustrative of his remarks. J. B. BRADBURY, M.D. (Cambridge).

PONCET ON SYPHILITIC MENINGITIS.—M. Poncet (*Annales de Dermatologie et de Syphiligraphie*, 4me année, no. 3) related the following case.—The patient believed to have this affection was a prostitute, twenty-six years old, admitted into the Lyons Hotel-Dieu on Feb. 7, 1872. She contracted syphilis a year before, and thenceforth had at long intervals relapses of that disease. Headache at night, without obvious cause, was frequent. Shortly before admission this headache increased violently, and was followed by shivering and by obstinate vomiting. Speech was slow, difficult: the eyes were half closed, the pupils dilated; pain was referred to the forehead and nape, where the muscles were strongly contracted, drawing the head backwards. The abdomen was soft, and retracted. Vomiting continued, though less frequent. Pulse 92, and temperature in the rectum 98.6° F. There was general hyperæsthesia, accompanied by momentary contraction of the muscles. She was ordered to have ice applied to the head and calomel given by the mouth. The low temperature and even pulse continuing, the possibility of syphilis was suggested, and inunction was practised, while iodide of potassium was given internally. In one day the temperature fell to 97.7° F., and the pain greatly diminished. The next day the pain and vomiting were altogether gone, and the patient slept naturally. As experiment the mercury and iodide were withheld, and the temperature immediately rose to 99° F. The pain returned to the nucha and forehead the next day, and nausea was troublesome. Sixty grains of iodide of potassium were then given in the twenty-four hours. The pain left her, she could sit up and talk, and asked for food. The temperature was 98.75° F. to 99.2° F. The next day, the iodide was not added to her daily medicines. The frontal pain and nausea returned, with wakefulness; pulse 78, temperature 99.2° F. The iodide was withheld three days, during which time the slowness of speech, wandering looks, general hyperæsthesia, and vomiting returned. The

temperature fell to normal in the morning, but rose to 99.2° F. at night. After this the iodide was steadily administered, 60 grains per diem, and in seven days the patient left the hospital, quite free from her symptoms. Three weeks later she retained the same absence of cerebral irritation, and was apparently in good health.

The leading peculiarities of this case were, invasion by headache, shivers, and vomiting; the persistency of the headache and vomiting; the stiffness of the neck and the behaviour of the patient. These pointed to a meningeal irritation. The low temperature and regular moderate pulse, on the other hand, were very unlike those met with in ordinary meningitis, and induced the suspicion that the meningeal irritation was due to syphilis, which the complete control possessed by iodide over the symptoms greatly strengthened.

[A case very similar to this was reported by Duval (*Archiv für Dermatologie und Syphilis*, vol. iii. 1870.) The patient was infected in 1864, and had the usual series of syphilitic affections. In 1867, he had paralysis of the left motor oculi. In 1868 he vomited twice daily for a considerable period, and had constant headache. Ordinary treatment was of no effect; but a complete cure ensued on the administration of iodides of mercury and potassium.—*Rep.*]

MILDNER ON INTRACRANIAL SYPHILIS CONNECTED WITH INTELLECTUAL DISTURBANCE.—Dr. Mildner (*Wiener Medizinische Wochenschrift*, July, August, 1872) was for fifteen years chief resident physician in the Vienna Asylum for Lunatics from rural districts, viz., from 1854 to 1869. In this period 5,529 lunatics were admitted. In recording their cases, special reference was made to the history of the patients' past sexual life, and to the condition of the genitals, and particular research was made for symptoms of syphilis or its consequence. But the author was able to trace syphilis as the chief cause of the intellectual disturbance, either during life or after death, in fifteen cases only. In five of these cases the skull-cap was thickened at its inner table, the outer one worm-eaten, in different situations. The brain-tissue was softened, the right centrum ovale being in one case converted into a glossy yellow substance.

[The class from which the patients were derived is that most free from syphilitic contagion, dwellers in rural districts; hence this very small proportion of syphilitic disease must not be taken as the usual one among the insane.—*Rep.*]

EISENSCHITZ ON THE LATENT STAGE OF INHERITED SYPHILIS.—Dr. Eisenschitz (*Wiener Medizinische Wochenschrift*, nos. 48 and 49, 1873), confines his remarks to that interval after birth which in many infants precedes the external characteristic manifestations of the disease, and to which the most trustworthy observers accord a duration of six to twelve weeks. He describes the symptoms that are usually present even in this apparently latent period, which, taken together, enable the physician to suspect the existence of syphilis, and justify him in instituting specific treatment without waiting for generally recognised signs. He remarks that in families infected with syphilis, the earlier children usually manifest their disease at birth or very soon afterwards; but it is among the later children this interval of latency is most commonly observed,—in those generated when the syphilitic influence in the parents is waning. The author compares the latent

stage to the interval that is met with between the disappearance of one syphilitic rash and the development of another. In discussing the importance of ascertaining the previous medical history of the parents, the author states that he believes that the child always inherits the disease from the mother, never from the father, while the mother remains unaffected: a doctrine of practical importance, as it neutralises any scruple against urging the mother to suckle the child herself, and one of the great difficulties in treating inherited syphilis is thus avoided—that of finding an artificial food which the feeble digestion of a syphilitic child can assimilate.

No wet-nurse should be employed unless she be made fully aware of the possibility of her contracting syphilis herself from the child. On this point, he mentions that Günzburg (*Österreichische Jahrbücher für Pädiatrik*, vol. ii. 1872) has recently published an opinion founded on a considerable number of observations at the Moscow Foundling Hospital, that wet-nurses are not contaminated by infants who have inherited disease, and that, when women are infected by children they suckle, the children have acquired, not inherited, their disorder. Eisenschitz, however, declines to agree with Günzburg on this point, and falls back on the known immunity of mothers when suckling their offspring.

The majority of children with inherited disease are feeble and ill-nourished. When this state is very marked, and the child dies from 'debility,' the viscera usually contain characteristic conditions of a syphilitic kind. A close examination of children wasting from syphilis, usually detects about the corners of the mouth or anus the beginnings of the fissures and mucous patches, that shortly make the presence of syphilis obvious. When the child, however, seems well-nourished at birth and has the usual weight or is even heavier than the average, and continues to grow, it is most important to detect the existence of syphilis, for in him it is curable and he may recover completely.

Such infants nevertheless are usually very anæmic, though their complexion is not of bloodless pallor, but like alabaster with a yellowish tinge. They do not behave like healthy children who, when lying in the nurse's lap, laugh and throw about their limbs when noticed; they lie still, or are fretful with their own discomfort. Indigestion of some kind is usually present, even when the child is regularly suckled by his mother or by a healthy nurse. The child cries much, is restless and wakeful at night. This restlessness is partly due to the direct influence of the syphilitic poison, but in a greater degree to coryza. The coryza may be very slight, and may exist a long time before the attendants are aware of it, or before it becomes abundant, purulent, or bloody. Yet the secretion is sufficient to plug the deeper parts of the nasal passages and thereby hinder respiration. The child then lets go the nipple constantly when sucking to get breath, sleeps with his mouth half open, and so makes his mouth and throat dry. Even when awake the child's mouth is constantly open, and thus his face has a peculiar expression. The spleen is enlarged almost invariably very early, long before the eruption appears. To detect this, the hand should be laid on the belly at the middle line, and gently passed outwards to feel the big spleen lying beneath the ribs. Eisenschitz says, in children thus suffering, whose parents have had syphilis, it is right to begin mercurial treatment at once, as by that means the

further development of the disease may be arrested. If syphilis be the cause of indigestion and restlessness, these speedily diminish, and the child improves in weight. It is often requisite to conceal the nature of the child's disease from its attendants; for this he prefers calomel, given by the mouth, as that remedy is employed for a variety of ailments unconnected with syphilis, and inunctions with mercurial ointment coloured with some pigment; the inunctions being ordered ostensibly to relieve colic or flatulence.

The nostrils should be cleared and brushed with red precipitate ointment, and the child's nose now and then tickled till he sneezes, so as to blow out the mucus before it dries into crust.

MOUSTAPHA FAID ON PERVERTED NERVOUS SENSIBILITY IN SYPHILIS.—This physician has published an essay on twenty cases of this kind, reviewed in *Annales de la Dermatologie et de la Syphiligraphie*, no. 3, 1872-3, which contains the result of the investigations he carried out while Fournier's hospital assistant. He divides the cutaneous sensibility into three kinds, 1st, of pain; 2nd, of touch; and 3rd, of heat. During the early stages of syphilis these senses may be separately or conjointly affected, being sometimes increased, diminished, or perverted. Hyperæsthesia of the skin is very rare in syphilis; when present, it usually has near it anæsthesia or analgesia (loss of sensibility to pain). The hyperæsthesia occasionally attacks the mucous membrane, the muscular masses or the fibrous coverings of the joints. Perverted sensibility shows itself by sensation of cold being complained of in parts of the body where the temperature is normal, or even heightened by general febrile disturbance. Diminished sensibility may also be general to the three varieties of sense or limited to one. Most often analgesia is present, while sensibility to touch and heat are preserved. The sensibility to heat is the least often diminished. When analgesia is present, it affects a much larger surface than paralysis of the other senses.

These affections of the general sensibility are most frequently observed in females, and are accompanied by intellectual or other nervous disturbances that closely [and suspiciously—*Rep.*] resemble ordinary hysteria, BERKELEY HILL.

PIROCCHI AND PORLEZZA ON MYDRIASIS CONSEQUENT ON SYPHILIS.—The authors relate (*Giornale Italiano delle Malattie Veneree e della Pelle*, iii. 1872, and *Archiv für Dermatologie und Syphilis*, 1872) the case of a patient who was infected twelve years before the report; thenceforth he had wandering rheumatic pain without constitutional symptoms. In February, 1872, the patient, then forty years old, had a fixed pain in the right supraorbital region; mydriasis and loss of visual strength followed. General treatment was instituted first with iodide of potassium, then with the green iodide of mercury, and Calabar bean as a local application. On April 12th his state was as follows. The right papilla was much enlarged; iris sluggish; he had diplopia. Visual power was restored by looking through a hole in a diaphragm of card. The eye was otherwise normal. There was no skin-syphilide. He had slight swellings of the nuchal glands. By continuing the iodides of potassium and mercury, a complete cure in one month was obtained. On July 18th a similar condition of the left eye developed, and, being similarly treated, was also removed.

The authors attribute the affection to a gummy deposit in the sheath of the optic nerve, and to consequent disturbance of the sympathetic plexus surrounding it.

DERMATOLOGY.

BESNIER ON MILIARIA.—Dr. Besnier, of the Hôpital Saint-Louis, in an article on this affection (*Ann. de Dermatologie et de Syphiligraphie*, vol. v. no. 1), briefly describes the first outbreak of miliary fever at Leipzig in 1862, the important position it occupied in medical literature for a hundred years, and its gradual disappearance from nosology as a substantive disease, since the writings of De Haen (1760) and Gastilier (1778), until it is only to be found on patients' bed-cards in Italian hospitals. M. Gintrac, of Bordeaux (1859), Bazin (1862), Guéniot (1862), argue in favour of the occasional occurrence of a specific fever, accompanied with miliaria; but the few cases collected by the first-named author are too indefinite to found his conclusion on; Bazin's account is that of a vesicular eruption like roseola or erythema, without pyrexia or any grave symptoms; and Guéniot's observations refer to the scarlet fever of puerperal women.

Dr. Besnier next gives a careful account of the anatomy of a miliary eruption, but adds nothing of importance to the previous descriptions of Biesiadcki and Neumann. He justly remarks that, though the liquid of the vesicles is usually acid at first, and alkaline later on, this rule is liable to many exceptions; in fact, he discards any real difference between sudamina and miliaria. The favourite localities of the eruption he describes as the face, especially the forehead at the roots of the hair, the flexor surface of the arms, the back especially in rheumatism, the chest and groins in scarlet fever, and the abdomen in puerperal cases.

He distinguishes two kinds of miliaria:

1. An eruption of sudamina, attended with local redness, itching, &c., but without any fever. This is only seen in very hot weather, and is most common in the tropics. It appears to be closely allied to, if not identical with, the form of erythema well known as 'prickly heat' in India (*Lichen tropicus* of Bontius and Willan), and as *bourbouilles* in the Antilles.

2. A strictly secondary eruption of sudamina which may occur in the course of various diseases. Of these Dr. Besnier enumerates (1) the curious sweating-sickness, still endemic in some parts of the north of France, though happily it can no longer, as in the fifteenth century, be called *sudor Anglicus*; here sudamina are only occasionally present and of no special importance; (2) scarlet fever, where it is of some diagnostic value, when it occurs early on the chest and in front of the armpits; (3) small-pox, less common; (4) measles, rare; (5) phthisis and pneumonia; (6) rheumatism; (7) typhus; (8) intermittent fevers, rare; (9) puerperal fever, where the eruption may be accidental, as in other pyrexia, but sometimes accompanies the most fatal pyæmic forms of the disease.

In all of these cases the eruption is only symptomatic, so that the author agrees with Hebra in denying the existence of any disease which can be properly described as miliary fever.

SCHEDI ON CONGENITAL ALOPECIA.—Schedi publishes in Langenbeck's *Archiv* (vol. xiv.) two cases of congenital alopecia. In a piece of skin

excised from the scalp, the sebaceous and sudoriparous glands were found normal, and there were also follicles which resembled those of the hair and were provided with arrectores muscles, but showed no trace of a bulb. P. H. PYE-SMITH, M.D.

NEW INVENTIONS.

APOLLINARIS WATER.

The Apollinaris water belongs to the class of effervescent alkaline waters. It is not incorrectly described as a 'natural effervescent mineral water of great purity, very agreeable flavour, and valuable dietetic qualities.' The analysis of Bischoff, of Bonn, shows it to be a water intermediate in composition between the famous waters of Selters-brunnen and Kränchen at Ems. But it has advantages over both of these.

Apollinaris Water is certainly the queen of table-waters. It is softer and more refreshing than its only rival, Seltzer water (Nassau: Selters Brunnen), and is more pleasant to the palate. Over all manufactured aerated waters it has an incomparable superiority. The coarse chemistry of the laboratory can never rival the refined operations of nature, and in nothing is this more apparent than in comparing the attempts which are made even by the best manufacturers to imitate natural effervescent waters. The Apollinaris water is one of peculiarly happy constitution, and, skilfully bottled as it is under pressure at the Brunnen, it has all the sparkling qualities which alone make artificial waters tolerable—for what is more intolerable than the vapid flavour of artificial aerated water if the injected gas which disguises its crudity be allowed to pass off?—with the amenity and purity of a water in which antacid qualities are cunningly infused by the master hand of nature.

It is, moreover, a water of great organic purity—another highly important desideratum in which artificial aerated waters often dangerously fail. Its place seems, therefore, marked as the favoured beverage of the favoured classes, who can select their drinking-water. Its outlandish name is perhaps a little against it at first, but no doubt, after a little time, 'a bottle of Apollinaris,' and 'Apollinaris and Hock,' 'Apollinaris Cup' will be as familiar as 'S. and B.' Already, we believe, it is beginning to be known in some of the clubs by the affectionate diminutive 'Polly.' Physicians will find it a valuable addition to their resources, as a cool and refreshing drink, antacid, and useful in promoting digestion and removing gastric irritation. Such a water is the sworn enemy of gout, rheumatism, and their congeners.

MISCELLANY.

A MEDICAL VIEW OF THE POLITICAL POSITION.—Towards the result of the late election, a great number of causes conspired. One of them undoubtedly was that the main influence of the whole medical profession, which had been usually employed in favour of Liberal candidates and a Liberal Government, was, on this occasion, for reasons which are worth attention, used for the Conservative candidates. All the leading organs of the medical profession, which, on many political topics, exhibit a considerable

diversity of opinion, had been unanimous for many months in expressing the most decided disapproval of Mr. Stansfeld's administration of the Public Health. Animated by jealousy of the efficient staff of the medical department handed over by the Privy Council to the Local Government Board, the old officials of the Poor Law Board had persuaded Mr. Stansfeld very early in his career to show his independence by snubbing Mr. Simon and his staff, by first framing and then endeavouring to administer the Public Health Bill, 1872, without reference to them. The result has been the creation of a chaos of sanitary districts, officers, and proceedings which are the dismay of all who have watched with understanding eye the extraordinary vagaries of the poor law inspectors, in their character of sanitary envoys. One after another has gone forth with the most crude and variously elementary notions of his work; and one after another has floundered into the bog. The most able of them, Mr. Doyle, after completely breaking down in South Wales, has fairly fled. Mr. Henley appears only lately to have discovered that he really is not an authority on water-closets. About a thousand medical officers have been appointed, some over areas of a hundred thousand square acres, with a population of 250,000, and without any deputies or assistants; some over areas of one or two hundred acres; some with a small fee 'per case,' and a hint not to make cases, as their boards object to fees. The hopeless, heterogeneous, and ludicrous confusion which Mr. Stansfeld has brought about is deeply discouraging to those who looked to him to use the great opportunity of 1872 for establishing order, and at least laying down satisfactory lines. The obstinacy with which Mr. Stansfeld blundered into the bog of despond, and the discredit which he has brought upon sanitary legislation, have been the source of continuous comment in the medical press, and his determined effort, after disarranging the sanitary machine, to smash the index by crushing the medical department which was the witness and standing reproach of his blundering, roused the indignation of the entire profession, and lost the government a great proportion of votes in every constituency. The very cavalier manner in which Mr. Cardwell disposed of the grievances of the army medical officer, by concessions which are considered to be purely illusionary, did something to increase the medical discontent which threw the main influence of the British Medical Association with its 5,000 members into the hands of the Tories, and made the leading medical men of half the villages in Great Britain—and very often the doctor is a leading local politician—active agents for the Conservative candidates. Mr. Disraeli has with this party, at least, the advantage that his motto is *Sanitas Sanitatum*, and that Mr. Stansfeld's successor can hardly fail to enjoy a relative popularity with the main instruments and chief authorities of public health.

THE NUNS OF ST. JOHN'S SISTERHOOD.—A good deal of feeling has been excited in many circles in London by the rather summary determination, at which the Board of King's College Hospital have arrived, to give notice to quit to the Sisters of St. John's House, who have now for some years undertaken the nursing in that hospital. This step is taken on alleged administrative grounds, the medical and surgical staff, with one exception, being, we believe, entirely opposed to any such measure, on the ground that in the hands of the Sisters of St. John's House the nursing of the patients has been conducted with very great skill and tenderness, and that the example of nursing by ladies in sisterhoods, which King's College Hospital was one of the first to set, has been followed with advantage by most of the Metropolitan hospitals. A general meeting of governors, is, we believe, likely to be called to discuss the proceedings of the board.

INSTRUCTION OF MIDWIVES IN HUNGARY.—In 1872, the Hungarian Government instituted schools for midwives in Presburg and Grosswardein, and, having regard to the various languages and dialects spoken in the country,

ordered that in the former place the instruction should be given in the German, Hungarian, and Slavonian languages, and at Grosswardein in Hungarian and Roumanian. Dr. Ambro, professor at the Presburg school, has just published a text-book for midwives in the Slavonian language. A Vienna contemporary reports that the work contains some useful instructions for midwives, as to the conditions of labour which render it necessary for them to call in medical assistance, and in other respects defines clearly the limits of their sphere of labour. They are informed, *inter alia*, that the public medical service of Hungary is soon to be placed on a more satisfactory footing; and that none but intelligent women, able to read and write, will be allowed to practise midwifery.

SANITARY ORGANISATION IN LOWER AUSTRIA.—A code of organisation for the Sanitary Government of Lower Austria has lately received the Imperial sanction. Each town possessing a separate municipality, and each political district, is to form a sanitary district, and to have a council of health. In towns the burgomaster, and in the country districts the chief government officer, is to be at the head of the Council, which is in each case to consist of representatives of the public, and of the medical profession, including the district medical officers for the time being. The Councils have to make yearly reports to the General Council of Health.

A CHARITÉ HOSPITAL MEDICAL SOCIETY has been formed in Berlin. It consists of the medical officers of the hospital and of the Pathological Institute and Dispensaries, and its purposes are the utilisation of the great stores of material afforded by these institutions, and the promotion of friendly intercourse among its members. At the first meeting, on January 15, Dr. Mehlhausen, the medical director of the hospital, was elected president. One of the rules limits the length of all papers to fifteen minutes, and of speeches made in discussion to five minutes, unless a longer time be allowed by a special vote of the meeting.

THE prize of 500 lire (20*l.*) offered by the editors of *Lo Sperimentale* for the best paper published in that periodical during the year, has been awarded by the Medico-Physical Society of Florence, to which the adjudication is intrusted, to Professor Philip Pacini, for an elaborate essay on osmosis and absorption in the animal organism. The essay appeared in the numbers for October, November, and December of last year, and occupies altogether 169 pages of *Lo Sperimentale*.

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The London Medical Record.

WEDNESDAY, FEBRUARY 18, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

SPICER ON PARASITIC FLIES.

The following, by Mr. W. W. Spicer, of Itchen Abbas, is taken from *Hardwicke's Science Gossip*. 'By this term I do not mean the hosts of black flies, sand-flies, gnats, mosquitoes, *et id genus omne*, which try men's patience and temper by sucking their blood; but a still worse "crew," whose mission it is to deposit eggs either upon or within the human body. In these cases it is the larva or grub which works all the mischief. The period of occupancy occurs before the perfect insect comes to light; and therefore man's tenant, in the instances to which I allude, is the grub—not the fly.

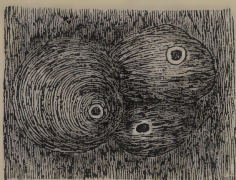


Fig. 1. "Whorbles," or "Worm-holes," in hides of oxen.

'The last place perhaps in which one would look for the larva of a flower-fly (I know no better way of rendering the technical name, *Anthomyia*) is the human stomach. Yet at least two species (*scalaris* and *canicularis*) occasionally occupy this singular locality. How can they get there? is the first and most natural question; but one which it is by no means easy to solve. The most probable suggestion is that they are introduced with vegetables which have been standing for some time, and on which the mother-fly has, in the innocence of her heart, laid a batch of eggs, unwitting of the evil consequences likely to follow. But in whatever way they have been brought into their temporary lodgings, they appear to adapt themselves readily to surrounding circumstances, and to make themselves quite at home, clinging to the inner surface of the intestine by means of minute spines with which the back and sides are armed. While there, they cause, as may be supposed, considerable irritation.

'The occupation of the flesh-fly is more legitimate than that of those just named, and the insect seems to be but fulfilling its proper mission when it occasionally assumes the rôle of the parasite. It is true, its feeding-ground is more generally the dead than the living subject; still it is not averse, when the occasion offers, to choose man as the nidus on which to deposit its eggs or larvæ (for several species are viviparous), and to rear its young. In this way it has often caused serious annoyance and even danger to life, laying its eggs in hot weather on wounds and

sores, where they speedily hatch, and the grubs, instead of dropping to the ground, eat their way into the flesh. A terrible story is given by Kirby and Spence (*Introduction*, vol. i. p. 137, ed. 4), of a beggar being almost literally devoured alive by the larvæ of flies, attracted by some meat placed by the wretched man "betwixt his shirt and skin."



Fig. 2. Grub of *Hypoderma*.



Fig. 3. Flesh-fly (*Sarcophaga carnaria*).

'A similar story of a not less painful nature is recorded by M. Aristide Roger, in his *Les Monstres invisibles* (p. 55). It has reference to the death of a chiffonier, who was found a few years ago in a ditch just outside Paris, still living, but with his features completely destroyed by the multitude of blow-fly grubs feeding on him.

'Man's perverse ingenuity has converted this propensity of flies to devour living flesh into an instrument of torture; for Plutarch assures us, that in Persia state criminals were sometimes thus punished. For this purpose the wretched individual was fixed securely between two boats, the upper being inverted over the lower, with only the feet, hands, and face exposed; the latter being besides smeared with honey. The result may be imagined. Countless swarms of scavenger flies, attracted by their prey, deposited masses of eggs on the victim, who was



Fig. 4. Blow-fly (*Calliphora fulvibarbis*).

thus eaten alive. Persons have been known to live for several days before they succumbed to this horrible torture.

'The principal parasites, at least in this country, are the different kinds of flesh-fly (*Sarcophaga*, fig. 3) and blow-fly or blue-bottle (*Calliphora*, fig. 4), the prolific parent of the "gentles," dear to the heart of youthful Izaak Waltons. Prolific indeed they are! Degeer calculated that a single flesh-fly may deposit about fifty larvæ (for she is viviparous), and in the course of six months may become the happy mother of more than five hundred million descendants! (Lennis, *Naturgeschichte des Thierreichs*, s. 620.)

'In addition to the above there are two flies, whose habits have not been thoroughly studied, but the

effect of whose parasitism is, in one case at least, very serious. They are confined to the warmer regions of America, and are known to the natives under various names: in Brazil they are the Ura; in Costa Rica, the Torcel; in New Granada, the Gusano peludo; in Cayenne, the Ver macaque. With regard to one of these flies, Bates speaks as follows. "A species of *Æstrus* or gadfly, on the Upper Amazons, fixes on the flesh of a man as a breeding-place for its grub. I extracted five at different times from my own flesh. The first was fixed in the calf of my leg, causing there a suppurating tumour, which (being unaware of the existence of this *Æstrus*) I thought at first was a common boil. The tumour grew, and the pain increased until I became quite lame, and then, on carefully examining the supposed boil, I saw the head of a grub moving in a small hole at its apex. The extraction of the animal was a difficult operation, it being an inch in length and of increasing breadth from head to tail, besides being secured to the flesh of the inside of the tumour by two horn-hooks. An old Indian of Ega showed me the most effective way of proceeding, which was to stupefy the grub with strong tobacco-juice, causing it to relax its grip in the interior, and then pull it out of the narrow orifice of the tumour by main force." (*The Naturalist on the Amazons*.)

Alexander von Humboldt had already published an account of a fly with similar habits, which he named *Æstrus hominis*. According to his observations, the larvæ of the insect are not rare on the arms, back, and abdomen of the natives, within large tumours, at the top of which is a minute orifice, through which the grub communicates with the outer air. At a fitting period the larva forces its way through this hole, falls to the earth, and there undergoes its final changes.

All this is precisely what occurs in the case of the European gadflies. Every resident in the country must have noticed lumps or swellings on the backs of oxen, especially of heifers, which are called by the rustics whorbles (fig. 1) or wormuls, no doubt meaning worm-holes. Within each of these swellings lies ensconced a grub, the produce of a large brownish fly, which was named by Bracy Clark *Hypoderma bovis* (fig. 2). From August to May the head of the little creature is plunged in a mass of purulent matter, on which it feeds, while the tail, in which the breathing apparatus is situated, is thrust through a minute hole at the apex, in order to come in contact with the outer air. During the month of May the larva manages to enlarge the orifice, through which it drops to the ground and seeks a convenient place of shelter.*

This little bit of life-history points to a close analogy between our gadfly and the human parasite of South America. Moreover, a connecting link is found in a narrative given us by Don Ramon Paez in his *Life in the Llanos of Venezuela*, wherein he writes: "Agapito, our host, had an easy time as overseer of this domain, his only occupation being from time to time to scour the savannah in search of young foals which might have been attacked by the 'gusano.' This is the larva of a species of fly deposited in the umbilical cord of the new-born foal

which, if not promptly removed, will eat into their very vitals."

It will not escape observation that the horse-fly of Venezuela and the human parasite of the neighbouring state of New Grenada both pass by the name of Gusano.

On the whole, we can scarcely avoid the conclusion that some species of ox-fly not unfrequently leaves its proper pasture-ground, and deposits its eggs on the human frame. Certainly Van der Hoeven (*Handbook of Zoology*, i.) is inclined to think that the injury is due to this cause, or else to some species of *Tachina*.

Other authorities, however, introduce us to a fly whose mode of action bespeaks it a place among the flesh-flies—a group very far removed from the gadflies.

One species infests the valleys of Mexico, both North and South, though not found on the high table-lands. This fly lays its eggs in the nostrils of human beings; the larvæ are quickly hatched; and then follow rapidly ulceration, erysipelas, and meningitis. The insect gradually eats its way into the mouth, eyeballs, cheeks, &c., until in a fortnight or three weeks the miserable victim succumbs to his fate (*Archives médicales Belges*, 1867). The same or a similar plague is not uncommon farther south. Captain Burton does not appear to have been himself cognisant of any case in Brazil, but he speaks of hearing "many tales told of negroes losing their lives in consequence of the grub being deposited in the nose and other places" (*Highlands of the Brazils*). A more detailed account I translate from M. Girard's work, *Les Métamorphoses des Insectes*, published in 1867. "Since the transportation of prisoners condemned to hard labour to Cayenne has been in vogue, several fatal cases have been traced to the



Fig. 5. *Lucilia hominivorax*.



Fig. 6. Grub of ditto.

operation of a fly named by Dr. Coquerel *Lucilia hominivorax* (fig. 5). Other convicts have escaped with the loss of their nose; for it is into the nose and cheeks of sleeping men, especially when in a condition of helpless intoxication, that the insect introduces its eggs. The maggot, which is furnished with strong hooked mandibles, establishes itself in the interior of the nostrils, and in the frontal sinus; from thence it passes to the eyeballs, and causes gangrenous wounds in the eyelids; or it enters the mouth, and gnaws away the gums, the palate, and the pharynx, causing intense anguish. The patient experiences at first an itching sensation in the nostrils, accompanied by severe headache and swelling of the nose, which is soon followed by ulceration of the parts affected, during which the larvæ force their way through the skin, and make their appearance

* No great harm follows from the attacks of the gadfly to our herds; but we are told by Dr. Bernard Altum, in his lately published work, "Forst-Zoologie, Säugethiere," that in Germany the hides of the wild deer are often so riddled by these grubs as to render them unfit for the purposes of the tanner.

on the surface. As the evil advances, violent inflammatory action sets in, with all the symptoms of meningitis and erysipelas, until death releases the victim. The grub in question is known in Cayenne as the *ver macaque*, and was published to the world so long ago as 1735 by M. Arture, physician to the King of Cayenne. It is probable that the *ver moyacuil* of Mexico, which attacks men and dogs, is an analogous species.

“Dr. Coquerel has also made known another fly under the name of *Idia bigoti*, indigenous in Senegal, which stings the soldiers on duty near the coast. In all likelihood this stinging is the introduction of the animal's ovipositor previous to placing its eggs under the skin. The larva has been met with in tumours in the back, arms, and legs. The negroes are often attacked by this fly, and are skilled in extirpating the larva.”

‘From what has been related, and from the cases of assault quoted by Moquin-Tandon in his valuable *Medical Zoology*, I infer that at least two species of fly, belonging to distinct groups of the Dipterous order, are concerned in this kind of parasitism. One, an *Æstrid*, to be ranked with the European *Hypoderma*, causes swellings and sores on the legs and arms of the persons affected. This is probably the *Cuterebra noxialis* of Goudot. The other, a *Muscid*, nearly related to our blue-bottle (*Calliphora*), attacks the face of its victim: it is the *Lucilia hominivorax* of Coquerel.’

DISEASES OF CHILDREN.

ON DIABETES MELLITUS IN CHILDREN.

BY DR. HIRSCHSPRUNG OF COPENHAGEN,* WITH CASES BY DR. BUDDE OF COPENHAGEN,† AND DR. SCHOUBOE OF KALLUNDBORG.‡

In a former number of THE LONDON MEDICAL RECORD (March 12, 1873, p. 153) an abstract was given of a paper by Senator on diabetes in a child. Since then, Dr. Hirschsprung, of Copenhagen, has published a case, and has added some comments founded on it and on eleven other recorded cases; and cases have also been related by two other Danish physicians, Dr. Budde and Dr. Schouboe. The rare occurrence of the disease in children gives interest to these observations.

Diabetes, says Dr. Hirschsprung, is an especially rare disease in children. In vain we seek for a knowledge of it in the most celebrated authors on children's diseases, such as Rilliet and Barthez, Trousseau, Barrier, Vogel, Gerhardt, Steiner, Henoeh, &c., and those who give an account of it (Billard, Bouchut, Underwood) adduce no instances from their own experience, but cite an apocryphal case of the last century, attributed to Morton. The only author who speaks of the disease from his own observation is West, and he first mentions it in the fifth edition of his well-known work on the *Diseases of Children*. For a number of years he had not met with a case of the disease, and he relates that Prout, in 700 cases, found one in a child five years old, and twelve in persons aged between twelve and twenty. If

information on the subject be sought in monographs, it is very limited; and the discrepancies in the accounts given are so great, that the observations must be inaccurate on one side or the other. Bouchardat says that no age is free from glycosuria, that he has seen it in a child under three years of age, and in old men aged more than eighty, that the prognosis improves with age, and that he has not seen a case successfully treated under the age of fifteen. On the other hand, Durand-Fardel states that the examples of diabetes in children which have come to his knowledge, led him to believe that the disease is not very dangerous in them, that it is more easily treated in childhood than after puberty, but that the prognosis again improves with increasing age.

To arrive at any trustworthy information as to the behaviour of diabetes in children, we must refer to journalistic literature: this, however, contains but few published cases; and even these may be still further reduced, if we take those only which afford guarantees of an accurate diagnosis. Their number is so small, that a short abstract of them may be given.

1. Brown (*Virchow's Jahresbericht*, 1870, vol. ii.) relates the case of a female child, born of healthy parents. When one year old, she was weaned, and was afterwards fed mostly on farinaceous food. She had good health up to the age of twenty months, when she began to drink unusually much, and to pass urine often, especially at night. Five or six weeks afterwards, she became weaker and somewhat wasted. As the mother observed that the drops of urine on the floor left on evaporation a white substance which had a sweet taste, the urine was examined, and was found to have a high specific gravity and to contain an abundance of sugar. Emaciation, debility, erythema around the vulva, and a smell as of chloroform in the breath, were observed, and the child died in three weeks of exhaustion. On section, miliary tubercles were found.

2. Gelmo (*Jahrb. für Kinderheilkunde*, 1861). The patient was a girl aged six. There were slight indications of the presence of rickets at an earlier period. She had had hooping cough, scarlet fever, and measles; the last when she was five-and-a-half years old. From that time, she did not properly recover her strength. When Gelmo saw her in September, 1859, she was remarkably thin, pale, and depressed, and the skin was dry. The mother stated that for some weeks the child had had a voracious appetite, drank much, and passed urine often; and that there was involuntary discharge of urine at night, which had not occurred in previous years. The urine was found to have a specific gravity of 1.035, and to contain eight per cent of sugar. Two days later the child was collapsed and somnolent; she complained of obscurity of vision, had less thirst, and passed a smaller quantity of urine, which contained 5 per cent. of sugar. On the fourth day she lost consciousness. The urine, which was in small quantity, was of specific gravity 1.036, and contained 8 per cent. of urea and 15 per cent. of sugar. Death occurred on the fifth day. The head only could be examined *post mortem*. No collection of fluid was found in the ventricles, but the white substance of the brain was distinctly hypertrophied and anæmic.

3. Heiberg (*Ugeskrift for Læger*, 2nd series, vol. xxiv). A girl nine years old, previously healthy, had for six months frequently suffered from transient

* *Ugeskrift for Læger*, third series, vol. xv. no. 25.

† *Ibid.*

‡ *Ibid.* no. 30.

gastric symptoms. After the last attack there was some languor and wasting, but not much pallor; her face had some expression of suffering, and her temper was changeable. She had apparently recovered, when her condition became distinctly worse. It being stated that the child had lately often wet her bed, the urine was examined, and was found to contain 8 per cent. of sugar. She had not had much thirst, and had not passed urine often, but had lately occasionally done so at night. Five days after the diagnosis was made, the child died collapsed. At the necropsy, nothing was found which could explain the illness or its sudden termination. The brain was not examined.

4. Ingerslev (*Hospitals-Tidende*, 1869). A girl aged five years grew very thin in the course of two months, became fretful, and suffered from slight gastric disorder, generally attended with constipation; she had much thirst, and daily discharged an increasing quantity of urine. It was found to have the characteristics of diabetic urine, and contained a considerable amount of sugar. The treatment ordered was not carried out; and two or three weeks after Ingerslev first saw the patient, she died comatose, without having presented any new symptoms.

5. Seegen (*On Diabetes Mellitus*, 1870). A girl aged twelve came under observation on May 18, 1862. Her brother had died of diabetes a year previously. At the age of two-and-a-half years she had severe symptoms of diabetes, and took without effect various remedies. The percentage of sugar was 9.5. From this she recovered sufficiently to be able to go to school. In the winter of 1861-62 a cataract gradually formed in the left eye. The child now became very thin, pale, and low-spirited; she entirely lost vision in the left eye, the right remaining unaffected. The liver was normal. There was slight dulness at the apex of the lung. She had moderate thirst, slept well, and had a good appetite. She passed 3,450 cubic centimetres (more than six pints) of urine daily; it contained 8.2 per cent. of sugar. Ten days later the quantity was 2,900 cubic centimetres (about five pints), and sugar 6.8 per cent.; and these proportions continued as long as she was under treatment. Her diet was almost entirely animal. The strength did not perceptibly improve. In the following winter she died at her home.

6. Seegen (*loc. cit.*). A girl aged eleven, whose mother had mental disease, had suffered much from nervous headache, and for a long time had had much thirst, and had become very languid. In August, 1864, diabetes was diagnosed; she had then become very thin and pale, her skin was dry, a sour smell proceeded from the mouth, and the teeth were beginning to be carious. From four to seven potsful of urine, containing 7 to 7½ per cent. of sugar, were passed daily. The symptoms improved a little under the use of bicarbonate of soda, a rigid animal diet, and cod-liver oil; the weight of the body increased, and the amount of sugar diminished. On March 1, 1865, she became worse, and on July 13 came under Seegen's care. She was thin and pale; her head was large in proportion to the body, and her manner was shy and anxious. She had excessive thirst, and a voracious appetite; she was constipated, and was readily exhausted by slight exercise. Her weight was forty-nine pounds (Danish). She was under treatment from July 13 to August 24, during which time the amount of urine remained a little under 2,000 cubic centimetres (three-and-a-half pints), while the percentage of sugar fell from 4.9

to 3.9. The weight of the patient remained unchanged. The further course of the case is not related.

7. West (*Diseases of Children*, 5th edition). The patient was a girl aged three-and-a-half years. A brother aged two years, and a sister aged two-and-a-half, were said to have died with similar symptoms, six weeks after the commencement of their illness. Within about two months the child had been indisposed; she had become much emaciated, but had not manifested the violent thirst which is special to diabetes. The quantity of urine passed in twenty-four hours was about 4,000 cubic centimetres (about seven pints); it had a specific gravity of 1.045, and was found by the potash and Trommer's tests to contain an abundance of sugar. As the parents gave up all hope on the death of their other children, and could not be induced to try dietetic or other treatment, nothing more was known of the progress of the case.

8. West (*op. cit.*). This patient was seen twice only. It was a child ten years old (sex not stated), who for eighteen months had had symptoms of diabetes, which had followed convalescence from measles. The urine was abundant, and had a specific gravity varying from 1.035 to 1.050. The thirst, diuresis, and wasting were diminished by appropriate treatment.

9. Senator (*Berliner Klinische Wochenschrift*, no. 48, 1872). A weakly boy, aged thirteen, who had previously often been in bad health, had for some time suffered from enuresis and pain in the region of the bladder, without any other manifest symptoms. Belladonna was given without effect; the patient became steadily worse, and had great appetite and thirst. The quantity of urine passed daily was two or three quarts: it contained 3.2 per cent. of sugar. The almost complete restriction of the diet to animal food, and the internal and external use of alkalies, juniper, arsenic, and other remedies, were without avail; fever soon set in, with caseous bronchopneumonia, and death occurred in three weeks. The necropsy, which had to be limited to the abdomen, revealed nothing worthy of note.

10. Senator (*loc. cit.*). A girl, twelve years old, sparingly nourished and scrofulous, had for eight or ten days felt dull, and complained of violent thirst. Examination of the urine discovered a large amount of sugar. Fever soon appeared, and was followed in ten days by death, four weeks at most after the symptoms first became apparent.

11. Hauner (*Casper's Wochenschrift*, 1850). An illegitimate female child, one year old, was received into the Children's Hospital at Munich. It had been healthy at birth; but, as it had not been fed from the breast, but fed with milk gruel, it did not thrive, had diarrhoea, and manifested some symptoms of mesenteric disease. It was soon observed that the child drank very greedily, was constantly wet with urine, was very restless until it had allayed its thirst for a short time, and had a constantly dry skin. The urine, on examination, was found to contain albumen and unmistakable evidence of sugar. Treatment by animal diet, Gellnau water, and morphia had only a temporary effect, and the child died in a month, emaciated to the highest degree. At the *post mortem* examination, the kidneys alone presented signs of disease; they were enlarged and twice the normal size, and were of a whitish-grey colour and firm consistence; small purulent foci were found here and there in their tissue. The

mucous membrane of the pelves and ureters was in a state of catarrh.

Various other cases will be found reported in journals under the name of diabetes ; but their title to be reckoned as such is not sufficiently established by an accurate record of chemical analysis. There is specially room for doubt, whether some of the reported cases were not instances of diabetes insipidus, a disease which, according to some authors (Hauner and Roger) is not more rare in children than in adults, and may be followed by death. To the eleven cases above mentioned is limited the entire number of unquestionable cases of diabetes mellitus in children which I have been able to find in literature ; but, although the number is small, and some of the narratives in their original form do not indicate that the cases were subjected to minute examination, they yet give valuable information on some important points. In the first place, we see that the disease may occur at various periods of childhood. The etiology is as uncertain in children as in adults ; we see the disease occur in children living in good circumstances, but it seems especially liable to occur when nutrition is defective. In no case was there evidence of hereditary tendency, although in two cases the disease appeared in brother and sister. In two cases the disease was developed during convalescence from measles. Very remarkable, if not accidental, is the frequency with which the disease occurs in girls. Of eleven cases, nine were in females, one in a male, and in one the sex is not stated : and in my own observation the patient was a girl. [It will be seen that in Dr. Budde's case, to be afterwards treated, the patient was a boy ; and in Dr. Schouboe's case, a girl]. If this relation should prove to be constant, it will be the reverse of what occurs in adults, where males are most liable to the disease.

The symptoms are altogether the same in the child as in the adult ; but in some cases attention has first been directed to the disease by the occurrence of nocturnal enuresis in children at an age above that at which the symptom usually appears (Senator). Cataract is mentioned in one case, gangrenous affections in none. It is difficult to estimate the duration of the disease, as the time of its commencement is often unknown : sometimes the patients have died in a few days or a fortnight after the disease has been first observed, especially in very early age ; in older children, the influence of remedies has been greater and the duration of the illness longer. Just as the symptoms resemble those in the adult, so do the results of the *post mortem* examinations, in the few cases in which they have been made ; the appearances are either negative, or such as may be considered as secondary. The second case only (Gelmo's) is an exception, inasmuch as on careful investigation there was found to be hypertrophy of the encephalon—the relation of which to diabetes may, however, be regarded as doubtful.

(To be continued.)

UNIVERSITY OF VIENNA.—It has been decided, we understand, to institute a professorship of experimental pharmaco-dynamics in the University of Vienna. The *Wiener Medizinische Wochenschrift* cannot recognise the necessity for this chair, seeing that the university has already a professor of pharmacology, who teaches the action of drugs at the bedside or by experiments.

MILITARY MEDICAL OFFICERS' SOCIETIES have been formed in Vienna and in Pesth.

CLINICAL MEDICINE.

ABSTRACT OF A CLINICAL LECTURE ON METEORISM. BY THE LATE PROFESSOR OPPOZLER, OF VIENNA.*

(Concluded from p. 50.)

Having in the previous remarks briefly treated of the etiology of meteorism, we will now consider the treatment.

While, on the one hand, in spite of the great number of opinions which have been formed in the course of ages on the etiology of meteorism, it has been quite impossible to bring to light its true nature, and even Oppolzer's probable theory, that the condition has its beginning and end in the nervous system, requires more accurate proof and complete elucidation ; on the other hand, the rational treatment of meteorism has to encounter less numerous and no smaller difficulties. This is explicable, when we find in the most various quarters innumerable medicines mentioned as efficacious against this morbid symptom, as is no less the case with many other diseases, while yet not one or other of them is capable of even approximatively fulfilling the required conditions.

Starting with the view that meteorism depended on a paralysis of the nervous system, Oppolzer was directed by this assumption as to the course to be followed in combating the symptom described, so far as it was within the power of medicines. He adapted his experiments solely to the opinion which he had formed, and, in prescribing, gave special preference to medicines capable of stimulating the nervous system.

In the milder cases of meteorism, he for the most part employed friction of the abdomen with Hoffmann's balsamum vitæ, carminative ointment, or spirit of camphor ; the last of which seemed to him often the most effectual means of favouring the escape of gases and thus reducing the distension of the abdomen. Notwithstanding that, on the whole, this treatment was attended with as much success as was possible, it became evident that along with the action of the remedies described was combined that of friction ; and Oppolzer for some time desisted from inunction, employing friction alone as a means of stimulating the nervous system. It is self-evident, that inunctions can only be used in cases where there is no erysipelas of the abdominal wall.

Other remedies usually employed in cases of this kind are the carminatives, which act as stimulants of the nervous system. Oppolzer, however, was not a great friend of carminatives, as all more or less affect the head, and thereby bring more or less trouble to the patient. He generally used them only in cases where cold applications were no longer well borne.

When no good result could be obtained from these means, or when their use was contraindicated for special reasons, Oppolzer made abundant use of cold compresses, or, when these could not be borne, of warm moist ones. He held very strongly to cold compresses, and used them in special preference and with fortunate results. It must be remarked of cold bandages, that their use, when meteorism has reached a high degree, is indicated on the special ground that they are far more useful in exciting the intestinal

* *Allgemeine Wiener Medizin. Zeitung*, January 27 and February 3, 1874.

movements than any of the other remedies. In applying them, it is advantageous at first to use water which has stood some time in the room, and gradually to pass to cold water, and then to ice-water and bladders of ice. The cold compresses, as used by Oppolzer, are soaked for some time in water, then wrung out, and laid on the abdomen, being covered with a layer of gutta serena. In general, however, they are badly borne by the abdominal wall; they are, however, an excellent remedy even in peritonitis. Their action, although it does not take place in all cases, consists in exciting the movements of the intestines. The escape of gases and the disappearance of meteorism may often be observed under their use. The distressing feelings which attend meteorism are also removed by the cold compresses, through the use of which the gases are condensed; the dyspnoea, however, which attends a high degree of meteorism is not relieved by them, as meteorism in this stage does not yield to either cold or warm compresses.

Oppolzer further observed, that peristaltic movements of the intestines, followed by evacuations, were produced by simply rubbing the limbs with cold water. A small quantity of vinegar may be added to the cold water in which the compresses are dipped, to increase the desired action.

A further remedy that has been used against meteorism, is the administration of clysters. Oppolzer used these only for the purpose of stimulating the rectum; and under their employment he has observed a discharge of faeces and gas to take place, followed by descent of the diaphragm, increased ease of respiration, and relief of the dyspnoea to some extent. Castor-oil was generally added to the enemata, and for the most part did good service; but if it were desired to increase its action, more vinegar was added; this, however, can only be used in small quantity, as it has been known to readily set up inflammation of the rectum. Oppolzer's usual formula for enemata consisted of a spoonful each of vinegar and castor oil, and a pint of water. Cold water and camphorated spirit may also be used.

The attempt has also been made to relieve meteorism by evacuating the intestines of gases by introducing a tube. When it is possible to reach the part of the bowel containing the gases, these indeed escape, and the meteorism is thereby removed; but if the tube reach a part filled with faecal matter, its orifice is blocked up, so that no gas can escape.

A further endeavour has been made to pump out the gases by a piston, applied to the tube which is introduced into the bowel; but here also the apparatus can only act when the tube is in the intestine containing air, otherwise the faeces obstruct the end and prevent the passage of gases. In such a case, the attempt has been made to push the tube beyond the part of the intestinal canal where the faeces are contained: and if a passage be thus made and the piston drawn out, gases will escape. But it may readily happen, that the mucous membrane of the intestine passes into and blocks up the upper end of the tube, and may thus be forcibly drawn into it. Such an occurrence is very dangerous, as it may give rise to inflammation of the mucous membrane; in some cases, indeed, pieces of the mucous membrane have been torn off, giving rise to the formation of ulcers.

Setting aside the fact, that the pumping out of gases from the intestines must always be regarded as an essentially dangerous undertaking, it is further not always effectual; and indeed it is never neces-

sary to use the piston, seeing that the mere introduction of the tube into the part containing gases allows their escape, without producing injury of the mucous membrane.

The notion—theoretically correct—has also been entertained, that the gases—such as carbonic acid, sulphuretted hydrogen, and carbonate of ammonia—contained in the intestinal canal, might be fixed by appropriate chemical substances; and the most various experiments have been made in this direction. Thus the endeavour has been made to fix the carbonic acid by administering enemata containing calcined magnesia, the sulphuretted hydrogen by clysters containing salts of iron, zinc, or lead, and the carbonate of ammonia, which is specially collected in the intestines in typhus fever, by enemata containing chlorine, so as to form chloride of ammonium.

In very severe cases of meteorism, where it has not been found possible to remove the gases by the introduction of a tube, the caecum has been punctured. This expedient is, however, a doubtful one; since it is generally difficult to reach the bowel, which has a tendency to slip aside from the instrument. If, however, one have the good fortune really to penetrate the bowel with the instrument, the muscular fibres will contract around and close the opening on its removal, so that no more air can escape. On the other hand, if the bowel have lost its contractile power—and this is very often the case in consequence of its becoming paralysed—nothing can be gained by puncture, for the bowel cannot contract. In such circumstances, the faeces will escape through the opening into the abdominal cavity, and set up peritonitis.

When, therefore, the intestine is paralysed, puncture should certainly not be attempted. But, as it is not easy to ascertain whether the distended bowel is paralysed or not, puncture should for this reason alone be avoided—unless one wish to trust to good luck for the success of the operation. Only when it is positively known that the intestine retains its contractile power, is it right to make a puncture.

Oppolzer performed puncture once, when young, with a successful result; but afterwards he could never resolve to repeat it. When relief has followed puncture, it has been only of very short duration.

Dry cupping has been alleged to excite contraction of the intestines; but Oppolzer never used it.

Electricity has also been brought into use in the treatment of meteorism; it acts chiefly on the abdominal muscles, and good results have been obtained from it. Where, however, acute ileus has set in, Oppolzer has never observed good effects to follow the use of electricity.

When compression and hyperaemia of the lungs have occurred in consequence of meteorism, and there are strongly marked cyanosis and dyspnoea, the best plan is to treat the symptoms, and perform venesection to relieve the pulmonary oedema. It is very evident that this can only temporarily remove the danger which threatens the patient's life; but there is no other means of producing even this temporary withdrawal of danger.

ANATOMY AND PHYSIOLOGY.

FOSTER ON THE EFFECTS OF A GRADUAL RISE OF TEMPERATURE ON REFLEX ACTION IN THE FROG.—Goltz observed that, if a brainless frog be

placed in a vessel of water, and the temperature of the water be very gradually raised to 40° Cent. (104° Fahr.), no movements (beyond a few flickering spasms) take place; the frog becomes at last perfectly rigid, and dies without any attempt at escape. Dr. M. Foster (*Journal of Anatomy and Physiology*, Nov. 1873, p. 45) has verified this statement, and asks why the brainless frog is not excited by the stimulus of the hot water. In addition, he has made the following observations.—1. If a frog, from which the brain has been removed, be suspended by the jaw with the legs hanging freely down, and the toes dipping into a vessel of water, on gradually heating the water the toes are withdrawn by reflex action as soon as the temperature of the water reaches a little over 30° Cent. The result does not essentially depend on the rapidity of the rise. However slowly the water be heated, the feet are always withdrawn at a temperature of 35° Cent., or earlier. Whether heated slowly or rapidly, the feet are withdrawn at about 35° Cent. or at a lower temperature.—2. If the whole body thus suspended be similarly immersed and heated, no movements (or only the very slightest spasms of the muscles of the legs) take place; and on still further raising the temperature the body becomes rigid (*rigor caloris*).—3. If both legs be immersed up to the anus, and similarly treated, they also become rigid without movements either of the legs or of any part of the body, save only a few spasms.—4. If one leg only be immersed and similarly treated, it also becomes rigid without movements, or with only slight movement.—5. If both legs (or one leg) be immersed up to the knee, they are sometimes withdrawn; but sometimes no movements take place, and the portion immersed becomes rigid. The results in this case are not so constant as when either more or less of the body is immersed.—6. If the feet only be immersed, they are invariably withdrawn at 35° Cent., or under.—7. If a frog be suspended over a vessel divided by partition, with water at unequal levels on the two sides, so that one leg is wholly immersed and the foot only of the other leg, and the vessel be surrounded with water, the temperature of which is gradually raised, neither the leg nor the foot will be withdrawn, if care be taken that the water on both sides of the partition be equally and uniformly raised in temperature. If in this last observation the water on both sides be reduced to the same level, both feet are withdrawn. The following observation shows clearly that, whether or not the stimulation of a large surface may assist in producing the effects described, the main cause is the heating of the spinal cord.—8. A brainless frog was so placed in a vessel with a hole in the bottom, that the body and forearms could be exposed to the action of water, the temperature of which was gradually raised, while the whole of both legs from the hips downwards hung freely from the vessel, and were not subject to the action of the heated water. Though in an unusual position, the frog remained quiet in the absence of stimulation, and executed reflex movements when stimulated so long as the water in the vessel above remained at the ordinary temperature; thus, when the toes were made to dip in water gradually warmed, the legs were drawn up after a while as usual. When, however, the temperature of water in the vessel above, and that in which the toes were dipped below, were both raised *pari passu*, no movements at all took place; and ultimately, as the temperature continued to rise, the body above and the toes below became rigid from *rigor caloris* (the legs and thighs remain-

ing supple), without any save the slightest spasm. Tested by the dilute sulphuric acid method (which was here practicable) the reflex excitability of the spinal cord diminished as the temperature in the vessel above rose, without any signs of an initiative stage of exaltation.

The author concludes that the absence of reflex action in Goltz's experiment and the other modifications of it, are due primarily and chiefly to the depressing influence of heated blood carried from the skin to the spinal cord. The absence of reflex action with a gradual rise of temperature is still further ensured by the stimulus being uniformly applied, and by the exposure to the stimulus of a large amount of sensory surface at the same time. Both these circumstances tend to put off the reflex action till a higher temperature is reached, and thus assist in preventing it altogether. [Vide *Nature*, Dec. 4, 1873, 'Sensation in the Spinal Cord,' by G. H. Lewes, and reply in *Nature*, Dec. 11, by M. Foster.]

DEW-SMITH ON DOUBLE NERVE STIMULATION.

Dew-Smith (*Journal of Anatomy and Physiology*, vol. viii.), applied two pairs of electrodes to a nerve (sciatic of frog, with the gastrocnemius attached), one pair (B) being nearer the muscle than the other (A). We have thus four different cases:—

Case I. where the current in A is descending, in B descending.

| | | | | | |
|------|---|---|---|----------------|------------------|
| II. | " | " | A | " | B ascending. |
| III. | " | " | A | A is ascending | in B descending. |
| IV. | " | " | A | " | B ascending. |

The majority of observations were made on Case I. Two separate and independent induction-machines were employed for stimulating the nerve, and the contractions of the muscle were registered by means of the pendulum myograph. With simultaneous stimulation of two different points of the nerve, the contraction resulting is the same as when the near point only is stimulated; but when a small interval of time is allowed to elapse between the two stimulations, the contraction increases, rising to a maximum as the interval is lengthened, and afterwards dividing gradually into two independent curves. The direction of the current makes no difference whatever to the general result, that with simultaneous double stimulation there is no increase of contraction.

YULE ON THE MECHANISM OF OPENING AND CLOSING THE EUSTACHIAN TUBE.—Yule (*Journal of Anatomy and Physiology*, vol. viii.), had a catheter passed into his Eustachian tube, in order to compare the sensations felt in the normal ear with those in the catheterised one. The author found that the sounds produced in the larynx were rendered very much louder. That the Eustachian tube opens during the act of swallowing, is well known. The mechanism of the opening of the Eustachian tube, when not complicated by swallowing, the author, experimenting upon himself, finds to be the following. First, during the contraction for opening the tube, the velum palati does not change either its position or its shape—in fact, it remains unmoved; and further, it does not become tense, but hangs as soft and flaccid to the touch as at ordinary times of rest. (The tensor and levator palati muscles do not, therefore, participate in the opening of the tube.) Secondly, the only parts which do move are the two posterior pillars of the pharynx: they both move inwards simultaneously towards the middle line, moving from their old position from one-half to three-quarters of an inch. This action is steady,

and not spasmodic, and can be sustained for some considerable time at will. (The muscles most evidently concerned are the palato-pharyngei.)

The sound which accompanies the opening of the Eustachian tube is sharp and crackling, and is referred to some part of the tympanum, or perhaps to the membrane itself. It can be easily imitated on the sheep. The author believes it to be due to the separation of the walls of the Eustachian tube. The author then gives an anatomical description of the muscles involved, and the manner in which they act to produce opening or shutting of the Eustachian tube.

WILLIAM STIRLING, D.Sc., M.B.

PERSONNE ON CHLORAL AND ITS COMBINATION WITH ALBUMINOID MATTER.—In a work on chloral presented to the French Academy and published in 1869, M. Personne showed by experiment, that the transformation of chloral into chloroform, as had been formulated by Liebreich, was actual. M. Personne now makes public fresh proofs of this change, which has been contradicted upon the ground that blood does not possess sufficient alkalinity to transform chloral into chloroform; for, say the objectors, this change cannot be effected by alkaline bicarbonates—Vichy water, for instance. But it is found that, besides strong or feeble alkalies, magnesia, alkaline salts, such as bicarbonate of soda, of potash, borate and phosphate of soda, all alkaline animal liquids, as blood and white of egg, cause the transformation of chloral into chloroform, when the mixture is carried to a temperature of 40° Cent. (104° Fahr.).

In order to explain the difference of physiological action that exists between chloral and chloroform (the action of chloral is of longer duration than that of chloroform) we must look to another product of chloral, formic acid, and assume that this acid furnishes the carbonic acid of which the hypnotic action aids that of the chloroform. It is known that the division of hydrate of chloral gives, per cent., 72.20 of chloroform, and 27.80 of formic acid, according to the equation: $C_4HCl_3O_2, H_2O_3 = C_2HCl_3 + C_2H_2O_4$; further, a greater or less portion of the chloroform can be separated in the presence of soda into formic acid and chloride of sodium, $C_2HCl_3 + 4NaO = C_2HNaO_4 + 3NaCl$. A portion of the formic acid is certainly eliminated with the urine; but, admitting that the whole of the formic acid produced by the complete destruction of the chloral may be transformed into carbonic acid, is it to be supposed that the action of the carbonic acid aids that of the chloroform? The following reasons would indicate the supposition to be incorrect: 100 grammes of hydrate of chloral produce under complete decomposition 56 grammes of formic acid; consequently, 5.6 grammes is the weight of this acid that should be furnished by 10 grammes of chloral hydrate—a quantity that cannot be administered to a dog of medium size. But a dose of 10 grammes of dry formiate of soda, representing 5.83 of formic acid, administered to the same dog, does not produce the least anæsthetic effect.

But the following observations tend more completely to solve the question. Fresh blood, to which hydrate of chloral is added and maintained at the ordinary temperature, completely coagulates, and preserves its red colour, and remains unaltered (will remain so for months). When a small piece of muscle was plunged into a solution of chloral hydrate, its colour paled a little; a red liquid

exuded, which soon deposited a sediment. After several hours' immersion, the muscle left at a temperature of 15° to 20° Cent. (59° to 68° Fahr.), did not putrefy; it desiccated rapidly, taking a more vivid tint, and becoming friable, and easily pulverised. The dry matter contained some chloral and with alkalies furnished chloroform. Albumen also combines with chloral.

It is now generally admitted that albuminoid matters are amides; and, the aldehydes being susceptible of combination with these substances, it is not unreasonable to suppose that chloral, which is only a trichlorated aldehyde, can form with them analogous compounds. This combination of chloral with albuminoid matters will explain the longer duration of the action of chloral. The primary action of chloral hydrate upon albuminoid matters is to produce chloroform at the expense of the albuminoids; at the same time these matters deprived of their alkali, combine with the undecomposed chloral, and this combination affords a kind of reservoir of chloroform, gradually absorbed during circulation. This is explanatory of the occurrence of small quantities of chloroform in the blood of animals submitted to the action of chloral; it justifies the use of chloral in the dressing of wounds, as a powerful modifier of the tissues. It also shows that chloral can be advantageously employed for the preservation of the most alterable animal matters. M. Personne has preserved for some months a cerebellum placed in a solution containing one-tenth of chloral hydrate. Chloral hydrate can be employed in the preservation of a corpse, or of anatomical preparations.

PAGET HIGGS, D.Sc.

RECENT PAPERS.

- The Relation of Bone-Cartilage to Phosphate of Lime. By Dr. C. Aebly. (*Centralblatt für die Med. Wissenschaften*, no. 54, 1873.)
- The Origin and Growth of Epithelia and Endothelia. By Dr. J. Zielonko. (*Ibid.* no. 56, 1873.)
- Transfusion of Blood of different Animals. By Dr. Landois. (*Ibid.* nos. 56 and 57, 1873.)
- Intercellular Ossification. By S. Schachowa. (*Ibid.* no. 57, 1873.)
- On Parenchymatous Canals and their Relation to the Vascular and Lymphatic Systems. By Prof. J. Arnold. (*Ibid.* no. 1, 1874.)
- The Lymph-Sheaths of the Vessels of the Choroid Membrane. By Dr. F. Morano. (*Ibid.*)
- Note on the Communication existing between the Nuclei of Origin of the Third and Sixth Pairs of Nerves. By Dr. Féréol. (*L'Union Médicale*, Nov. 27.)
- The Physiological Action of Alcohol on the Human Organism. By Dr. Boragine. (*Lo Sperimentale*, Aug. 1873.)
- New Arguments with Reference to the Formation of Urea in the Kidneys. By Dr. Murri. (*Ibid.* Sept. 1873.)
- On Osmotic Phenomena and the Functions of Absorption in the Animal Organism. By Dr. Pacini. (*Ibid.* Oct., Nov. and Dec. 1873.)
- The Wolffian Bodies and their Relation to the Indifferent Glands. By Dr. S. Sirena. (*Gazzetta Clin. dello Spedale Civico di Palermo*, nos. 8 and 9, 1873.)
- The Influence of Bicarbonate of Soda on the Organism of the Dog. By G. Lomikowsky. (*Berliner Klinische Wochenschrift*, Oct. 6.)
- The Inhibitory Action of the Splanchnic Nerves on the Movements of the Intestines. By Dr. S. Ritter von Basch. (*Allgemeine Wiener Medizinische Zeitung*, Nov. 11 and 18.)

APPLIED PHARMACY.

SIEBOLD ON THE DETECTION OF ARSENIC IN HYDROCHLORIC ACID.—Mr. L. Siebold (*Pharm. Journ.* [3] iv. 312), reports that arsenic is frequently present in commercial hydrochloric acid. He considers that the usual plan of boiling a little suspected hydrochloric acid with a piece of pure copper foil, although a convenient test, is not sufficiently delicate to detect very small traces of arsenic. A careful examination with sulphuretted hydrogen will often prove most unmistakably the presence of arsenic in hydrochloric acid which has appeared to be free from it by the copper test. It is not sufficient, however, to add a solution of sulphuretted hydrogen, but the gas must be passed through the acid until the latter is completely saturated. After twelve hours, the precipitate which will in any case be formed, must be filtered, washed, dried, and fused with carbonate and nitrate of sodium; the fused mass dissolved in water, filtered, mixed with pure nitric acid in excess, boiled, and then tested with ammonia and nitrate of silver, or with sulphuretted hydrogen. It is impossible to judge of the absence of arsenic by the light colour of the precipitate.

SIEBOLD ON THE PREPARATION OF PURE HYDROCHLORIC ACID FROM THE COMMERCIAL ARTICLE.—On the strength of numerous experiments, Mr. L. Siebold recommends (*Pharm. Journ.* [3] iv. 312), the following two methods for preparing perfectly pure hydrochloric acid from the crude commercial article. The first method yields an acid of low specific gravity (1.20 to 1.25), which, though very suitable for analytical purposes, does not come up to the pharmacopœia standard of strength. The crude acid diluted with sufficient water to reduce the specific gravity to about 1.12, is saturated with sulphuretted hydrogen gas, and allowed to stand for fully twelve hours. The clear liquid is then decanted from the precipitate, and after the sulphuretted hydrogen has been driven off by heat distilled from a little chloride of sodium. The sulphuretted hydrogen removes not only the arsenic, but likewise the free chlorine or the sulphurous acid, whichever of the two may be present.

The second method, proposed by A. Bettendorff, yields a pure acid of 1.16 sp. gr. with very little trouble indeed. The crude acid, the specific gravity of which should be between 1.16 and 1.18 (not lower than 1.16) is mixed with a small quantity of a solution of stannous chloride in hydrochloric acid of the same strength, and allowed to stand for twenty-four hours. Any arsenic present will thus be precipitated in the shape of a brown powder, which consists of metallic arsenic, and a variable amount of tin. Sulphurous acid, if present, is precipitated as stannous sulphite, and in filtering is removed with the arsenic. The filtered acid now only requires to be distilled from a little chloride of sodium, as in the previous process. But as hydrochloric acid of so high a specific gravity parts with a great deal of hydrochloric acid gas on boiling, it is necessary to place a little water in the receiver for its absorption. This method also removes free chlorine, if present. Although stannous oxide forms an extremely delicate test for arsenic, the simultaneous presence of sulphurous acid might lead an inexperienced worker into error.

SIEBOLD ON PURE SULPHURIC ACID.—Mr. Siebold reports (*Pharmaceutical Journal*, [3] iv.

313) that the chief impurities for which sulphuric acid should be tested before using it for medicinal or analytical purposes are arsenic, lead, and oxides of nitrogen. Arsenic is best detected by Marsh's test, lead by sulphuretted hydrogen, and oxides of nitrogen by ferrous sulphate. An acid free from arsenic and nitrogen oxides, but containing lead, calcium, iron, &c., may be easily purified by distillation, but this will not remove the first-named impurities. The acid should be mixed with six or seven times its volume of water, and the mixture saturated with sulphuretted hydrogen. After forty-eight hours, decant the clear liquid from the precipitated sulphides of arsenic and lead; evaporate in a retort until fumes of sulphuric acid escape, and then distil. What passes over first is too weak and should be rejected, until an acid of 1.84 sp. gr. distils. To assure a quiet boiling of the acid, and thus to prevent a cracking of the retort, it is extremely useful to conduct a slow current of air, by means of an aspirator, through the acid during distillation.

SIEBOLD ON PURE NITRIC ACID.—Many samples of nitric acid, sold as perfectly pure, are quite good enough for medicinal use; but the traces of sulphuric acid, which they almost invariably contain, are a source of annoyance in medical laboratories where the acid is required for accurate scientific investigation. Mr. Siebold states (*Pharmaceutical Journal* [3] vol. iv. 313) that the application of the Pharmacopœia test—the addition of solution of barium chloride to the diluted acid—is insufficient to detect very small quantities; but if about four ounces of acid be evaporated on a water bath until only a few drops are left, and the residue mixed with a little distilled water and a few drops of solution of chloride of barium, a precipitate will be obtained from any commercial specimen of 'pure' acid. Nitric acid of the utmost attainable purity may be obtained by distilling commercial acid of 1.42 sp. gr. of good quality with a little absolutely pure nitrate of potassium from a glass retort. What passes over first must be rejected, until an acid distils, which, if diluted with water, forms a perfectly clear mixture with solution of nitrate of silver, and remains clear after standing ten minutes. Not less than two drachms of the acid should be subjected to the test. When thus free from every trace of hydrochloric acid the receiver is changed, and the distillation carried on until only about one-eighth of the original bulk remains in the retort. If carried further, traces of sulphuric acid might pass over with the nitric. This method is one generally adopted for preparing pure nitric acid of the pharmacopœia strength, but in consequence of the distillation being carried too far, or impure nitrate of potassium being used, few specimens are found free from sulphuric acid. Mr. Siebold says, however, that the separation of sulphuric acid from nitric acid, even of so high specific gravity as 1.4 is not difficult, though its boiling point being very high, if the distillation at that temperature be carried too far, or too little nitrate of potassium be used, traces of sulphuric acid invariably pass over. But an acid of lower specific gravity, about 1.25, suitable for most analytical purposes, may be always thus produced perfectly free from sulphuric acid.

Another method of purifying nitric acid consists in removing the hydrochloric acid by the addition of solution of nitrate of silver to the somewhat diluted acid, decanting from the precipitate and distilling the clear acid with a little perfectly pure nitrate of potassium, until about seven-eighths have passed over.

This method is only applicable for preparing an acid of low specific gravity (1.25).

GROVES AND WILLIAMS ON THE PREPARATION OF HYDROCYANIC ACID.—A discussion having arisen at the meeting of the British Pharmaceutical Conference (*Pharm. Journ.* [3] iv. 314), as to the possibility of the substitution of a definite salt, such as the crystallised cyanide of potassium, for an equivalent quantity of hydrocyanic acid, Mr. Groves suggested the use of cyanide of zinc. This salt, unlike the crystallised cyanide of potassium, which is deliquescent and easily alterable, is perfectly stable, readily yields up its hydrocyanic acid to the acid juices of the stomach or to dilute mineral acids, and is, Mr. Groves thinks, worthy of consideration, if not of a place in the next Pharmacopœia. Mr. Williams recommended the addition of a mineral acid to hydrocyanic acid, since it is impossible to keep that acid when perfectly pure any length of time. He urged that an equal quantity of hydrochloric acid should be ordered to be added. Thus, he thought two per cent. of hydrochloric acid might be added to a two per cent. hydrocyanic acid solution, and the acid could be preserved longer in that way than in any other.

POCKLINGTON ON THE STARCH GRANULES OF JALAP, CALUMBA, SENEGA, AND RHUBARB.—Mr. Pocklington thus sums up the characteristics of the starch granules occurring in these pharmaceutical roots (*Pharm. Journ.* [3] iv. 353). The starch granules of jalap are large, vary much in size and shape, and are aggregated or isolated. The compound granules consist of three triangular granules, the bases of the triangles being curved; the resulting granule is muller-shaped, approaching the circular. Many of the single granules are nearly circular, flattened with a triradiate indistinct hilum. In calumba root the granules are also large and very variable, sometimes simple, generally compound. The simple granules vary from nearly circular to mussel-shaped; the compounds are usually muller-shaped. The normal form of hilum is a longitudinal furrow, but a simple point or a three or four radiate slit or furrow are, collectively, as frequent. This starch is exceedingly sensitive to the action of any medium in which it may be immersed, and disrupts under slight elevation of temperature. In senega root the granules vary from a very small sharp-edged polyhedric granule to one of considerable size, more round and flattened. In rhubarb, the compound granule is oval, and composed of four well-formed granules, each with a distinct hilum.

GREENISH ON THE BOTANICAL EXAMINATION OF TEA.—Mr. T. Greenish recommends the examination of suspected leaves to ascertain whether they present the marked botanical characteristics of the true tea-leaf (*Pharm. Journ.* [3], iv. 334). Water should be poured over them, and they should be examined individually. The serration and venation of tea-leaves are very characteristic, the serration only coming half way down the leaf, and the primary venation stopping short of the edge of the leaf, or rather turning off and leaving a distinct space between it and the edge of the leaf. At the apex of the leaf there is a notch instead of a point. Again, if the under cuticle of the leaf be removed, the characteristic distinct space between the two cells of the stomata will be perceived. It is important to bear in mind that the Assam tea-leaf has its margin biserrate.

B. H. PAUL, Ph.D.

PSYCHOLOGY.

LEIDESDORF ON SATURNINE EPILEPSY WITH PSYCHIC DISTURBANCE.—Dr. Leidesdorf relates (*Allgemeine Wiener Medizinische Zeitung*, Nov. 4) the case of a man twenty-five years old, who had suffered from an attack of colic which left behind a trembling state of the limbs. Eight days before his admission to the asylum he had eight epileptic seizures one after the other, and became much depressed, fearing to die if left alone. There was difficulty in putting him to bed, and he tore off his clothes and spoke incoherently. The usual signs of chronic lead-poisoning were present; the urine was alkaline, not albuminous, nor was there any kidney affection. For the most part he was unconscious, but occasionally had lucid intervals. After a few days the fits returned very frequently, he became comatose, an erythematous rash spread over the whole breast, and he died. The diagnosis was anæmia and œdema of the brain complicated with pulmonary phthisis, all confirmed by the necropsy. Neither in the membranes, brain-substance, vessels, nor connective tissue was anything abnormal found by the microscope, but on chemical examination a small quantity of lead was found in the urine and some sulphide and sulphate of lead in the brain. The symptoms closely resembled, by the general tremor, the quasi-stottish unconsciousness, the searching about on the floor, delirium potatorum, whilst the coma and amaurosis which followed the epileptic seizures might have led to a diagnosis of uræmia, if the paralysed extensors and the blue line on the gums had not indicated lead.

Since the psychic lesion and the epileptic attacks first appeared a year after the lead-colic, they must be regarded as quite independent of it, for, according to Desbois and Tanquerel, encephalopathia saturnina may attack persons who have never before suffered from lead-disease. Tanquerel has related six such cases out of seventy-two of lead-poisoning; and accordingly saturnine epilepsy is a special form of the diseases caused by lead-poisoning. It does not consist of a demonstrable anatomical change in the brain, but belongs to the class of brain-neuroses induced by poisoning. Traube, in 1861, set forth a hypothesis that lead-poisoning in the first instance affected the kidneys, and that uræmia following was the cause of the epilepsy. Although Tanquerel (the best authority on lead-poisoning) expressly declares that he never found albumen in anything like a sufficient quantity in the urine, yet Ollivier and Lancereaux quote cases of Bright's disease among those poisoned by lead. In order to settle the question, Professor Rosenstein experimented on dogs, which died in consequence of chronic lead-poisoning, together with saturnine epilepsy, and his results were published in *Virchow's Archiv* for 1867. He concluded that chronic lead-poisoning causes neither albuminuria nor intense anatomical changes in the kidney, that it ends life very often through attacks of epilepsy resembling uræmic attacks, especially as in both amaurosis is set up, and in lead-poisoning diuresis is lessened. In animals so destroyed, lead can be found in the brain. The diminution of urine-flow is an accompanying symptom, not a causative one, and the basis of the epilepsy is anæmia of the brain. Acute œdema of the brain was found twice by Rosenstein, and was twice absent; and Tanquerel found it a frequent, but not

constant symptom. Where it occurs it aids the anæmia, but cannot be viewed as the cause of it. How cerebral anæmia is caused by lead-poisoning is not clear; yet, from the proved deposit of lead in the brain, and (as Gusserow has shown), the considerable deposit in the voluntary muscles, the influence on the smooth muscular fibres and the brain-vessels should not be disregarded. Heubel, in his thorough experiments, intended to refute or confirm Gusserow, proves that next to the liver and spleen, which promote the excretion of lead from the organism, the largest accumulations of lead are found in the brain and spinal cord, and that it has a more intense affinity for nerve-tissue. He thinks, then, that lead directly affects certain parts of the peripheral or central nervous system, and enters into at present imperfectly known combinations with each part, and that the chronic symptoms, such as headache, loss of sleep, stupor, melancholy, weakness of memory, &c., are due to deposit of lead in the brain, and the acute symptoms are caused by œdema of the brain, and the induced anæmia.

Tanquerel has collected thirty-one cases of lead encephalopathia running an acute course; of these seventeen were uncomplicated with epilepsy, whilst fourteen were so affected, and amaurosis was only twice established in the first, but six times in the second class. Noteworthy in all the patients is the constancy of hallucinations of sight. In the more gradually developed forms, the cases of lead-psychosis resemble paralytic brain-diseases in the attacks of unconsciousness with or without convulsions, tremblings, weakness of memory, and paralyses. But melancholic and maniacal forms are also seen, and the furious outbreaks are, for the most part, due to hallucinations of a horrifying nature.

T. C. SHAW, M.D..

SANDER AND OTHERS ON EPILEPSY.—A discussion took place at a meeting of the Berlin Medico-Psychological Association last year 'On the Forensic Significance of Epilepsy' (*Berliner Klinische Wochenschrift*, Oct. 6, 1873). Herr Sander spoke of epileptic attacks, which might easily be overlooked or not recognised as epileptic, and of the extent to which the presence of such attacks would become a medico-legal question; also, how far the mental condition of an epileptic in whom no insanity in the ordinary sense was discoverable, might be abnormal, and a matter of legal doubt. Herr Skrzeczka said that, whereas we assumed in the case of ordinary mortals that they committed their acts with consciousness, this presumption did not hold good in the case of epileptics; the very fact that a man is an epileptic demands a great degree of caution in judging of any act of an extraordinary nature. In judging of the various symptoms we must give great weight to anamnesia, and must ask how far such symptoms as these belong to epilepsy, viz., night terrors, waking covered with sweat after fearful visions, and perfect unconsciousness thereof in the morning. Such symptoms would be of the gravest importance, if on further investigation we find vertigo and other marks of epilepsy. As regards loss of consciousness, he mentioned a case where attacks of complete unconsciousness alternated with others where it was incomplete. An old lady suffered from a dream-like state, which seemed as if the world was covered with a veil and everything changed. At times, instead of this, there was complete loss of consciousness, and no recollection on waking of what had passed. Herr

Jastrowitz remarked that there is not always loss of consciousness where there is an epileptic attack, but in such cases there would not be much legal difficulty. The difficulty arises when the criminal act is the first sign of epilepsy, and there are only slight indications of the disorder. Herr Westphal thought that the existence or non-existence of consciousness was the main point to be discussed. We have no objective test of loss of consciousness; we have only the word of the patient. He narrated the case of a young man, whose attacks were feigned. This was revealed by talking during an attack of certain symptoms, which in a subsequent one he simulated. Though patients say they were unconscious, they often know to some extent what has happened. Neither can we trust to the reaction of the pupils, which sometimes act even when we find convulsions and loss of consciousness.

Herr Sander, in reply, said that many topics had been broached which must be discussed at another time. It was important to consider at first the epileptic attack proper, and therefore he left to future consideration the condition of a protracted loss of consciousness in which many things might be done. It is a question, however, whether we are to consider those attacks in which consciousness is more or less retained, as epileptic, or are to exclude them from this category. Romberg's test that epileptic and hysterical attacks are to be distinguished by the presence or absence of consciousness is correct in the majority of cases; but if we observe a great number we find in some there is no loss of consciousness, and yet they are unquestionably of an epileptic nature, and there are cases with loss of consciousness which in every other respect are of an hysterical character. Then there are attacks preceded by an aura in which consciousness is not lost; and others where the aura only exists, and which do not go on to loss of consciousness. Are we to consider these as non-epileptic because consciousness is preserved? Proof of consciousness is not to be derived from the feeling of pain, for movements caused in this way may be reflex; we can only tell that the patient is conscious if he be aware of what has happened during the attack. As scarcely any patient has an interest in feigning consciousness, we may accept a statement of what has happened during the attack as a proof that he was conscious. And many remember more or less what has gone on during the whole or a part of the attack. Dr. Meyer's objection that an epileptic attack cannot consist of insensibility without motor affection he does not consider valid, for in some patients we find at one time insensibility only, at another attacks with characteristic convulsions; or the attacks with insensibility may precede those with convulsions. The influence exercised upon the mental faculties, and the gradually increasing mental weakness often shows that these fainting attacks are truly epileptic.

G. FIELDING BLANDFORD, M.D.

SKAE ON INSANITY CURED BY TREPHINING.—Dr. C. Holland Skae reports (*Journal of Mental Science*, Jan. 1874) the case of a coal-miner who, four years previously to admission into the Ayr Asylum, had been struck on the head by a mass of falling coal, causing fracture of the skull about three inches above the left extremity of the left eyelid. He lay insensible for four days, and then recovered and resumed work in a few weeks.

Not many weeks later, his wife and friends noticed

an alteration in his habits and nature. Instead of being cheerful and sociable, and kind to wife and children, he became irritable and moody. At home he would sit moping over the fire, and act bearishly and roughly to those about him. Then he became excited, used threatening and violent language, and conducted himself in this way to all. Eventually he became acutely maniacal, and attempted his wife's life and also his own. He had a succession of epileptic fits before being brought to the asylum. On admission he was sulky and taciturn, and had a morose and ill-natured expression. He had a well marked depression with an ugly cicatrix about three inches above the left extremity of the left eyelid, which latter slightly dropped. He was two months in the house before the operation, and had slightly improved, that is, he conversed to some extent with certain persons, but would not join in work or amusements, was suspicious, and had delusions regarding the conduct of his wife and friends. Trephining was performed in 1870 by his former medical attendant, Dr. Clarke Wilson, of Ayr, and a piece of depressed bone removed. After a week or two in bed, the patient was moving about again, and gradual improvement took place in his conduct: he soon became a different person, and his affection for his wife returned in full force. He became cheerful and active, and was soon discharged sane. He has ever since supported his family, and has visited the asylum regularly at intervals of six months, apparently quite well.

NEWINGTON ON SYPHILITIC INSANITY.—In the *Journal of Mental Science* for January, 1874, are reported four cases of syphilitic insanity, so called; and upon the subject Dr. Hayes Newington makes some observations. He finds in various works the following relations between syphilis and insanity. 1. Acute mental disease may occur coincidently with or even preceding and following the eruptive stage. This is rare, and seems to require great brain-vulnerability for its production. 2. As a companion to the tertiary stage, may occur a condition found with other forms of meningitis, to be followed often by dementia. Dementia also occurs sometimes without appreciable intervening changes, but then it would be impossible to say that syphilis unaided had been the cause. 3. We meet with cases caused, not so much by a specific brain-destruction, as by the sequelæ of a syphiloma. This condition might be well described as syphilomatous insanity. The name would, at all events, tie one down to a precise diagnosis, and at the same time afford pathological information to a reader of statistical tables of insanity. 4. We again find syphilis existing in relation to melancholia; not a specific one, but on the other hand, one that requires careful investigation before it is admitted in any given instance. Of course we reject mere syphilophobia without any manifestation of the disease. But we admit the power of corporeal diseases to determine at least an attack of melancholia; therefore it is reasonable to include syphilis as an agent in producing this form of disease. Dr. Newington's case, and also the two reported by Dr. Batty Tuke, are examples of insanity, complicated with epilepsy, and in all three there was some amount of paralysis; in the first there was ptosis of one eyelid, in the other two some degree of hemiplegia. Probably all these would be placed by Dr. Newington under his third head, and be considered as examples of syphilomatous insanity. The fourth case, reported by Dr. Francis Cadell, was that of a gentleman aged forty-eight, in

whom acute mania came on eight months after he had contracted a chancre. He recovered in three months, and three months later lapsed into melancholia, from which he recovered in about two years.

G. FIELDING BLANDFORD, M.D.

RZERUCHA ON MANIA WITH INTERCURRENT FURY.—In the *Medico-Chirurg. Centralblatt* for Jan. 2, 1874, is the history, by Rzerucha, of a person nineteen years old, insane, whose history was as follows. He had never suffered from fits; indeed, up to his present illness he had been quite well. His grandmother had been insane, but in what way was doubtful, and her husband was one day taken dead out of a brook. The patient's mother was of very limited intelligence, and simple in her manner. A year before, the first, but very transitory, traces of mental disturbance appeared. Since then, he had followed his business until four days before the medical visit. Ten years previously he had been bitten by a dog. He was temperate, of middle size and slender build. The pulse was seventy in a minute, full. The pupils were normal. Sleep was almost entirely absent, or, at the most, of half-an-hour's duration and much troubled by dreams. He complained of difficulty of swallowing and of scraping sensations in the neck, and of hearing voices persecuting him; and though answering questions fairly well, yet there was a want of coherence in his thoughts, and he was easily diverted from the conversation that he most desired to sustain, for he thought that all wished to harm him, to betray or destroy him, whence he became violent, and threatened to injure himself or others. He could recognise pieces of money, and count them and give the names of the days of week.

The question of diagnosis was between hydrophobia, delirium tremens, and mania; but the long period (ten years) that had elapsed since the bite, together with the facts that the dog was quite healthy, and that there was no scar, rendered the first opinion improbable; whilst the difficulty of swallowing and sensation of tickling in the neck were probably untrue, for he swallowed large quantities of water readily. The absence of the peculiar hallucinations of delirium tremens, and the fact that he was always abstemious, reduced the diagnosis to mania with intercurrent fury. He was treated with a grain and a half of tartar emetic daily, and twenty grains of chloral hydrate at night. Soon the doses of these were increased, but the tartar emetic made him vomit, and the chloral seems to have been most useful by promoting sleep. After thirteen days' treatment he recovered, but only for a short time, for in fourteen days he was again taken ill, and this time he was sent to the asylum at Prague. Dr. Rzerucha gives the fullest adhesion to the virtues of chloral hydrate.

T. C. SHAW, M.D.

VON BISCHOFF ON A CASE OF MICROCEPHALISM.—Dr. T. L. W. Von Bischoff gives an anatomical description of a microcephalic girl, in the *Abhandlungen der Königl. Bayerischen Academie der Wissenschaften*, 2nd series, vol. xi. part 2. Helene Becker was born June 22, 1864, at Offenbach, of healthy well-formed parents. Her mother had previously borne two healthy children, yet living. Subsequently she bore three, of whom two also are living, and are well formed. The last child, born in September, 1870, is living, microcephalic, and on the whole like Helene, but shows more intelligence. The mother appears to have

suffered derangement of her health during these two pregnancies.

The child Helene died on February 20, 1872, at the age of eight years. She had manifested most extreme mental deficiency, and had not progressed in any degree mentally. Pleasure and pain, joy and grief, were properly the only external signs of psychical energy observable in her. Coaxing or scolding made equally small impression. She recognised no difference between the persons about her, whether relations or strangers. She knew her own name when spoken, but took no notice of the difference when called by any other name. She had no trace of memory. Not one word could she utter, although she could make a loud cry, giving forth two vowel sounds, if pleased; on the other hand, when in pain or angered, she would put forth a piercing cry. The sight of the left eye only was perfect, and she could distinguish bright glittering colours, especially red. The right eye was blind. Hearing was perfect on both sides, but loud or shrill tones were unpleasant to her. The sense of smell seemed to be unimpaired. Cutaneous sensibility was manifested on touching, pricking, &c. She exhibited no desire for food, and required constantly to be fed; she preferred seasoned food, and drank wine more eagerly than water or milk. The power of maintaining her bodily temperature was but slight; her hands and feet were always blue and cold. The heart's action was feeble, the pulse, usually 132, sank to 116, after prolonged rest. Digestion was good. The evacuations were passed without notice by herself. There existed a morbid excitability of the genitals; her hands were constantly on those parts, and if hindered she manifested not the slightest degree of shame, but resumed the act as soon as her hands were free. She could neither walk nor stand, was kept constantly on a bed or in a chair. She was extremely restless, and her limbs were constantly in purposeless movement. She would seize brightly coloured objects, but she had no special care for the dolls and toys with which her sister played. She slept very little, and during slumber, her limbs were jerked about. Her health was bad; she suffered much from catarrhal affections and ophthalmia. She was of a rickety constitution, and died at last of disease of the lungs.

The body and limbs were considerably distorted and wasted. The length of the body was about 30·8 inches; its weight was about 17 $\frac{3}{4}$ pounds avoirdupois. The weight of the brain, with its pia mater and arachnoid freshly taken from the cranium, was 219 grammes (about 7 $\frac{3}{4}$ ounces avoirdupois). After having been kept a day in solution of chloride of zinc, the membranes removed, and then transferred for fourteen days into spirits, it lost half its weight. Dr. Bischoff remarks that this, for its age, is the lightest brain on record, with the exception of one described by Dr. Julius Sander (Griesinger's *Archiv für Psychiatrie*, 1867.) The cerebellum, pons, corpora quadrigemina, and medulla oblongata weighed only 27 grammes, i.e. about one-fourth of the entire brain. The aspect of the brain was healthy, and resembled in configuration that of the ape tribe. The size and general characteristics of cerebral lobes, convolutions, and fissures were closely assimilated to those of the cynocephalus. The frontal lobes were prolonged forwards to a beak-like point. The posterior lobes of the brain were so slightly developed, that the cerebellum was uncovered behind. The temporal lobes, more particularly anteriorly, were

fully developed. The cerebellum, pons, and medulla oblongata were all large, and appeared normal.

The details of the deviations from the normal conditions of the convolutions and fissures of the brain are given by the author, and illustrated by engravings.

Dr. Bischoff accompanies his description of this microcephalic brain, with a survey of the literature of the class of malformations to which it belongs, and considers that by the complete history of such an instance he has supplied an existing deficiency in pathological science. [We would, however, point out that one of the cases to which he refers, viz., that recorded by Mr. Gore (*Anthropological Review*, vol. i. p. 168, 1863), has been subsequently described by Mr. John Marshall, in a paper read before the Royal Society, June 28, 1863 (*Philosophical Transactions*, 1864).—*Rep.*]

A microscopical examination of the brain was made by Professor Betz. The corpora pyramidalia of the medulla oblongata were smaller than usual, and the corpora olivaria seemed to have been arrested in their development, as had also the central ganglia of the brain. The cortical substance contained only large cells covered with a thick layer of connective tissue. The gray substance of the convolutions of the hemispheres showed a normal condition of the cells, neuroglia, and nerve-fibres, as did also the intimate structure of the cerebellum.

The cranium of Helene Becker is one of the smallest that, for the age of the child, has been observed. Peculiarities were observed in the bones of the skull, and are recorded by Dr. Bischoff. The muscular system was much wasted. The digestive organs and alimentary canal showed very slight deviation from their normal characters.

In the structure of the heart no deviation was observable. The large vessels rose from the aorta in the same manner as in anthropoid apes. The genital and urinary organs presented no deviation from the normal type. The ovaries and uterus were as little developed as in a new-born child.

W. B. KESTEVEN.

HUN ON MORBID APPEARANCES IN THE INSANE. Dr. Hun, the pathologist of the New York Asylum (*Report of the New York State Lunatic Asylum*), writes, that in every case examined there was some considerable disease of the brain and its membranes. The well-known connection between tuberculosis and insanity is well illustrated by the fact that, out of twenty-four cases, fourteen presented evidence of tubercular disease of the lungs. The peculiar deflection of the transverse colon towards the pubes, frequently mentioned, was observed in seven of the twenty-four. Among the abnormal conditions revealed by the microscope, were a granular fatty deposit in the enlarged perivascular sheath of the smaller vessels of the brain, a fatty degeneration of the nerve-cells, an increased proliferation of the connective tissue, small effusions of blood from rupture of capillaries, microscopic miliary aneurisms (as described by Charcot), and many other lesions not yet classified. In the brain of a female who died during an attack of subacute mania was observed, for the first time, a peculiar lesion of the brain and spinal cord, which afterwards was met with in a number of cases of insanity of various forms. Sections of the tissue, previously hardened in absolute alcohol, and coloured with carmine, were rendered

transparent with benzole and mounted in balsam. Examined by transmitted light, they could be seen with the naked eye to be studded with small white spots, which were very numerous and of variable size. Under the microscope, these spots presented a granular appearance, and many contained a number of elongated crystalline bodies. They did not imbibe the carmine solution to the same extent as the surrounding healthy tissue, and were of a pale greenish colour. Their edges were not well defined, but the deposit seemed gradually to merge into the normal brain-substance. They were circular or oval in form, and varied in size from one-twentieth to less than one-fivehundredth of an inch in diameter. In some instances the nerve-fibres seemed to pass through them, but as a general rule they seemed to be destroyed. These bodies occupied the white substance of the brain, none being found in the gray matter of the convolutions. They were observed in three females and four males. Last year the attention of Dr. Hun was called to another form of deposit in the brain-tissue, which differed from the preceding in that the spots were smaller and their outline more distinctly defined. These deposits were very dense and white; they did not imbibe the colour from a carmine solution, and contained none of the crystalline bodies observed in the first variety. They appeared to be surrounded by a capsule of condensed connective tissue, and none of them were traversed by nerve-fibres, the latter being pushed to one side. They could be easily detached from the healthy tissue by teasing out the specimen with a needle; and in one section, accidentally torn, the morbid deposits could be seen protruding from the torn edge in the form of rounded projections. This second form of deposit was found in five males and one female. G. FIELDING BLANDFORD, M.D.

REVIEWS.

Mineral Springs of North America, how to Reach and how to Use Them. By J. J. MOORMAN, M.D. Philadelphia. 1873.

Dr. Moorman tells us that he has practised for thirty-five years at the White Sulphur Wells. He is therefore able to speak of them, with all the weight due to lengthened experience of them; and when he gives a survey of all the other known springs in America in his compact volume, he discusses them also in a practical way. The chief defect of the book is, not that the springs are classed geographically, and therefore without much reference to their nature; but that there is an absence of generalisation, and that there are no comparative tables of the constituents of different wells. It is hard to find out from the book without some search, to which class particular springs belong. We are often tempted by allusions to beautiful mountain scenery, but in only two or three instances is the actual height above the sea of any bath given. With some difficulty, indeed, we have gathered, that Montvale springs are 1,400 feet above the sea, the Yellow Sulphur 2,000 feet, and the wonderfully copious sources of very hot water, supplied by the Hot Springs of Arkansas, are delightfully situated in a valley 2,100 feet above the sea. The analysis of many of the waters is old, and is almost always given in the old-fashioned calculation by gallons, so that it is difficult to use such analyses as are given, for purposes of comparison.

We are surprised to find that there is not a single reference to any French or German work on balneology; and it is probably in consequence of an imperfect acquaintance with European waters, that different baths are often jumbled together in an odd fashion. For instance, we are told that 'some of the ingredients of American aluminous sulphated chalybeates are to be found in the most distinguished of the English and German waters, particularly in those of Tunbridge, Harrogate, Leamington, and Aix-la-Chapelle, as well as in the waters of the famous Spa in Belgium, in those of Passy, and in the celebrated springs of Bagnères in Garonne.' Then, boasting of the amount of mineral constituents, although he elsewhere repeatedly remarks, that springs are not to be estimated simply by their mineral contents, the author says of a certain chloride of sodium spring, 'that it is about 10 per cent. stronger than the celebrated Congress spring, while it is four times that of Baden Baden in Austria (!), twice that of Vichy in France, nearly three times greater than the renowned Selzer of Germany, and five times greater than that of Aix-la-Chapelle in Prussia.'

Dr. Moorman has felt a delicacy in expressing his opinion of the arrangements, or, as he calls them, the improvements of different springs. In consequence of this, we can learn little or nothing of the drinking, the bathing, or the douching arrangements. Apparently there are no inhaling rooms in America. We confess that for strangers, it would have been more satisfactory, if he had maintained less reserve. In almost a solitary instance he ventures to praise the improvements at Beersheba, where, he tells us, 'the society is always select, elegant, and cultivated,' but says little more. Notwithstanding such drawbacks, Dr. Moorman's book has brought together a great deal of scattered information, from which we shall endeavour to glean a few general notions.

As regards their geography, the states of Virginia, West Virginia, and of New York, produce far the greatest number, as well as the most important, of the springs of North America. They occur in great numbers on the western and eastern slopes of the Alleghany range, and also in the Shenandoah Valley, between the Apalachian and the Blue Ridge mountains. There are many springs in other parts, some of the most notable of which, especially thermal ones, are in California, or near the great Salt Lake; and the hottest of all, and boiling springs, are the Hot springs, Pyramid Lake, Nevada. The few springs in Canada, of which we have authentic accounts, are not very important. The Varennes saline and chalybeate springs were formerly popular.

Next as to particular kinds of water, thermal springs, and they are nearly indifferent ones, are represented by the Berkeley and Sweet springs, two of the baths which have been used for more than a century. Their temperature is low, and nearly identical, about 72° to 74°. A little warmer are the Healing Springs, 86°, Buncombe, 94° to 104°, Warm Springs, 98°, and the Washita hot springs of Arkansas, as high as 140°. The amount of solid constituents in these waters is small. They are used very much in the same cases, as similar waters in Europe. Neuralgia, rheumatism, gout, also uterine affections, are among the principal diseases treated. The sweet springs resemble closely in composition the old Bristol hot wells, now removed to widen the channel of the Avon, and have been used with advantage in incipient phthisis, in chronic bronchitis, and in dys-

pepsia, very much as their prototype was employed eighty years ago.

The sulphur waters are extremely numerous, especially in Virginia, and there are a good many in New York. Of those in popular use, none can be called thermal. The chief are the White Sulphur, fully treated of by Dr. Moorman. Besides them, there are the Salt Sulphur, and the Red Sulphur, and other springs in Virginia, and the Avon waters in New York. All these contain sulphuretted hydrogen in greater or smaller quantities, often in very large ones, but they also contain sulphate of lime and magnesia; indeed, so little importance is attached to the gas present, that therapeutically, the sulphur wells are treated in this work as equivalent to saline springs, and we shall mention some of the latter before coming to the medical action of both.

In America they have no regular saline springs, that is, wells containing any considerable amount of sulphate of magnesia, or of sulphate of soda. Salts of lime usually predominate in what are called saline. As specimens of this very abundant class, one of the strongest, the Alleghany springs, may be mentioned, and one of the weakest, Gettysburg. The last has grown into sudden repute, since the battle which occurred at that place; but it is really an indifferent water, from which one would not expect much, as it seems to be only of ordinary temperature.

Dr. Moorman regards the action of most of these springs, especially of the White Sulphur, which he knows best, as profoundly alterative, altering deranged organs, as he expresses it. He is entirely in favour of the continued use of small doses, and dislikes irritative action or bath crises. He considers their operation to be analogous to that of the alterative action of mercury; they sometimes cause salivation, and are of the greatest service in cases of metallic poisoning. It is sometimes expedient to lower the phlogistic diathesis, before commencing the use of these waters, especially when they contain considerable quantities of gas. Gas often proves too stimulating, and in many cases it is better to let the gas escape, before the water is used. Dr. Moorman considers this of less importance, because he believes that there is a secondary generation of gas in the intestines, when the water has been drunk, deprived of it. It is worthy of note, that the Red Sulphur Springs enjoy great repute in pulmonary cases. Perhaps the most important practical hint to be got from the saline waters, is the great success with which it is affirmed that they are used against chronic diarrhoeas acquired in the South. The Montvale springs in Tennessee, containing lime and some iron, have a great reputation in such affections. Dr. Moorman thinks the use of the White Sulphur waters a very important aid in curing both chronic inebriety and opium-eating.

Coming next to chloride of sodium, we find New York State amply supplied with excellent waters, well stocked with salt, iron, and carbonic acid. The waters of Saratoga and Ballston can hold their own with Homburg and Kissingen. These wells have long been known, and may be said to enjoy a European reputation. There is a whole series of springs at Saratoga, including High Rock, with its curious conical enclosure of calcareous tufa, and the Empire Spring, with a considerable amount of iodine; and there are six principal wells of the Ballston group. The indications for the use of such waters are very wide; practically, perhaps, they are used most for

dyspepsia, and they are especially efficacious, where there is congestion of the abdominal organs.

With chalybeates, and alumino-chalybeates still more, America is well supplied. Some such are the Red Sweet Springs, rather weak, the Rockbridge Alum, stronger, also the Beersheba and Buffalo springs. Bedford Springs, in Pennsylvania, and Schooley Mountain Spring, in New Jersey, are, owing to their height, favourite summer resorts. There must be abundance of pure chalybeates in America, though we are not told much about them; but many of the popular steel springs are strongly impregnated with alum. They must, therefore, be used with care, in small quantities, and usually diluted. Such ones have never been very popular in Europe.

There are a great many springs that go in America by the name of acidulous, not, as in Europe, from affording an abundant supply of carbonic acid, but as containing, like some Italian springs, considerable quantities of sulphuric acid. Some of the chief of these, as the Oak Orchard Springs, are in New York. The strongest is the Tuscarora acid spring in Canada. Such waters are used commonly, in small quantities, as tonics and astringents. We know little of them in Europe, but they should be borne better by the stomach than the alumino-chalybeates.

We have already mentioned the absence of strong saline or purgative waters.* There seems also to be an entire want of alkaline waters, except in some distant regions, and of wells containing soda, the St. Louis Magnetic Spring being almost the sole exception to this. No waters appear to have been noticed as being arsenical, nor do most salt springs contain much iodine, or more than traces of lithia.

Dr. Moorman talks, with very proper reserve, of an American water that has of late years obtained a spurious popularity in cancer, the Missisquoi Spring. We have had occasion to know the details of several cases, in which it was employed in this country under competent surgical advice, and, it need scarcely be said, to no purpose in each instance. For some time the water appeared to have a certain amount of soothing power, which was probably the result, on the patient's mind, of the trial of a new and wonderful remedy. There would seem to be no quantitative analysis of it. But it is apparently an extremely weak saline spring, and does not profess to contain iodine. The proprietors of the spring themselves tell us, that 'its correct analysis is withheld for many reasons.'

In taking leave of Dr. Moorman, we would say, that we have gathered from his sensible volume a great deal of information, probably as new to the readers of this notice as to the reviewer.

J. MACPHERSON, M.D.

On Marienbad Spa and the Diseases curable by its Waters and Baths. By A. V. JAGIELSKI, M.D. Berlin. 12mo. pp. 185. London: Trübner & Co.

Dr. Jagielski writes his book 'to fill the existing vacancy in modern English balneological literature.' If he mean by this, that there is no separate English monograph on Marienbad, no doubt he is correct; and his remark would be applicable to most Continental baths. Nevertheless, Marienbad attracted the attention of English balneologists long ago, and we have full and sufficient accounts of it in the older

* The Saloon Spring at Harrodsburg, containing 28 grains of sulphate of magnesia in the pint, is one of the strongest.

writings of Granville, Johnson, and Edwin Lee, and we believe that it has been noticed in all more recent balneological works. Still Marienbad is so delightful a spot, and so efficacious are its waters, that we are glad to get this very complete account of the place. In it are given the results of the practice of the resident physicians; indeed, a great variety of subjects is handled, including the theory of the operation of mineral waters, and the general principles of hygiene, which are treated of at rather disproportionate length for a mere local handbook. As we observe no references to the personal experience of the author, we infer that his work is mainly a digest of the writings of others.

Like most books of the class, it is written somewhat exclusively in favour of the waters of which it recommends the use, both on the spot and at a distance; and we think we see something of this exclusive spirit in the cursory way in which the very admirable chalybeate waters of the rising and neighbouring spring of Königswarth are mentioned. However, Marienbad, the cold Carlsbad as it has been called, can afford well to stand on its own merits, being situated at a height of 2,000 feet among beautifully wooded hills, and containing so great a variety of springs. These include strong alkalo-salines, weak alkalo-salines, alkaline chalybeates and earthy chalybeates, for drinking; and for bathing, steel baths, mud baths, pine-leaf baths, for those who care for them, baths of carbonic acid gas, which last stand in need of improvement in their arrangements.

We can on the whole congratulate Dr. Jagielski on the way in which he has executed his work, and also generally on his English; although he must have had a very imperfect notion of the meaning of the word ravine, when he commenced his book with an announcement, very startling to any one that has visited Marienbad, that it 'lies in a lovely balsamic ravine.'

J. MACPHERSON, M.D.

MISCELLANY.

THE COMMUNAL HOSPITAL IN COPENHAGEN.—The report of this hospital for 1872 shows that the number of patients admitted during the year was 6,781, and the average daily number in hospital 619; while in 1871 the numbers were 7,655 and 693. The reduction is attributed in part to the institution of a small-pox hospital. The average time during which the patients remained in hospital was 30½ days. State Councillor Rörbye had determined on presenting to the hospital library his collection of medical works, and a portion had been received. A widow lady named Lund had left the hospital a sum of money, the yearly interest of which (320 rix-dollars, equal to about 37*l.* 6*s.* 8*d.*), was to be given in prizes to the nurses. There were 103 cases of small-pox, of which 18 died; and 77 cases of typhus fever, with 9 deaths. Five cases of pyæmia, of which four were fatal, occurred in one of the divisions of the hospital. Of erysipelas, there were 141 cases, of which all recovered except 9. The small-pox hospital, which was opened on November 4, 1871, received in 1872 999 patients, making, with 34 under treatment on January 1, 1,033, of whom 896 recovered, 113 died, and 34 remained under treatment on December 31. Another small-pox hospital was opened in the women's workhouse on January 14, and was open till October 22, with the exception of an interval from June 26 to July 5. In it 855 cases of variola were received, of which 99 died. There were in both institutions more cases of the hæmorrhagic form of the disease, than had been known in Copenhagen since the introduction of vaccination.

MEDICAL MUTUAL AID SOCIETY OF LOMBARDY.—The report of the *Società di Mutuo Soccorso pei Medici e Chirurghi di Lombardia* for 1873 shows that during the year 67 grants were made, 15 to members of the society, 49 to widows, and 3 to orphans. The sum distributed amounted to 9,600 *lire* (384*l.*). The total income for the year was 10,874 *lire*, of which only 2,680 *lire* was derived from annual subscriptions, the remainder being from funded property. The report appeals urgently to the profession in Lombardy for increased support.

THE forthcoming celebrations of Professor Rokitsansky's seventieth birthday appears to be exciting much interest. Several of the Universities, as Innsbruck, Gratz, and Prague, will be represented by deputations on the occasion.

TRICHINOSIS.—The *Berliner Klinische Wochenschrift* of February 9, says that cases of trichinous disease lately occurred in one of the districts of the city; but it was hoped that measures would be at once adopted with sufficient energy to prevent the spread of the disease. A number of cases were reported also from Potsdam. The occurrence of this disease, our contemporary says, gives an unfavourable idea of the condition of sanitary matters in Prussia; there is scarcely any disease of which the etiology is better understood, or which can be more certainly avoided than trichinosis.

PUBLIC SCHOOLS.—PRECAUTIONS AGAINST INFECTIOUS DISEASES.—Dr. Whitmore, the medical officer of Marylebone, has, in consequence of the prevailing and fatal epidemic of measles, sent a circular not only to the managers of every school in his district, but to every member of the London School Board, in which he states that measles is to a considerable extent disseminated by the free intercourse which takes place amongst children of the poorer classes in parochial and other public schools. He suggests that all school managers should take the trouble to ascertain whether children attending schools come from houses where measles, &c., exist, and prohibit further attendance until such houses are free from infection; also, that any room or cupboard used for children's hats, caps, bonnets, cloaks, &c., should be constantly disinfected by the free use of chloride of lime or carbolic acid.

DR. HOFFMANN, senior assistant in Professor Ferrieh's Clinic in Berlin, has been appointed Professor of Clinical Medicine in the University of Dorpat.

NOTICE.

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The London Medical Record.

WEDNESDAY, FEBRUARY 25, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BRUNTON AND FAYRER ON THE ACTION OF SNAKE-POISON.*

A paper by Dr. Lauder Brunton and Dr. Fayrer, on the physiological action of the poison of *Naia tripudians* and other Indian venomous snakes, was read before the Royal Society on January 22. The result of the authors' investigations was to show that the poison of the cobra is similar in its action to that of Ophiophagus, Bungarus, and other Colubrine snakes, whilst that of Daboia is similar to the virus of Echis, the Trimeresuri, and other viperine snakes; the chief difference between them being the greater tendency in the viperine poison to cause hæmorrhage or more severe local symptoms. The blood of animals killed by the viperine snakes generally remains fluid after death, whilst that of animals killed by colubrine snakes form a firm coagulum.

The conditions caused by the action of the poison are illustrated by the symptoms manifested by man and the lower animals. The Cobra, Ophiophagus, Hydrophidæ, and Bungarus are all very deadly. The Viperine Daboia and Echis are scarcely less so; whilst the Indian Crotalidæ, such as the Trimeresuri, are much less so. A series of experiments was detailed, illustrating the physiological action of the virus on the nervous system, the muscles, the blood, the respiration, the circulation, and the functions of excretion, and also the mode in which death is produced.

Death may occur in several ways. 1. It may be due to arrest of the respiration by paralysis of the muscular apparatus, by which that function is carried on. 2. It may arise from rapid arrest of the heart's action, in cases where the poison has found direct entry by a vein, e.g. the jugular. In such, death is almost instantaneous, and the heart is found to have ceased to beat when in systole. The physiological import of this is very interesting and important, and it was demonstrated by Dr. Brunton, who explained its probable mode of action in certain ganglionic centres in the heart. 3. Death may be due to a combination of arrest of respiration and of the heart's action. 4. It may be due, where the quantity of poison is small, or its quality less active, to secondary causes of the nature of septicæmia, a purely pathological question not discussed.

The mode in which paralysis of respiration (the ordinary form of death) is induced, has been most thoroughly investigated.

The virus absorbed into the blood, either by inoculation into the areolar tissue, or by application to a mucous membrane, affects the cerebro-spinal

nerve-centres, the nerves and their peripheral distribution, more especially of the motor nerves. The sensory nerves are less and later affected, and the intelligence generally latest of all, and slightly. The complete loss of it, and the convulsions which precede death, are mainly caused by the circulation of venous blood, the result of the impeded respiration.

Muscular force and co-ordination are gradually lost; paralysis and asphyxia being the evidence. In ordinary cases, the heart goes on beating vigorously long after apparent death, and, with artificial respiration, its action may be kept up for many hours.

The investigations recorded were made with cobra and daboia poison, sent to England from Bengal in the dried state, a condition in which it resembles gum arabic, and its activity is great. The animals experimented on were dogs, cats, rabbits, guinea-pigs, fowls, pigeons, small birds, frogs. Its action on all these, and the mode in which functions and tissues are affected, were recorded in detail, as well as the extent to which the action of the poison is modified when introduced through different channels.

The authors of the paper stated that it had now been clearly shown that the poison acts when introduced into the stomach, or when applied to a mucous or serous membrane. The idea that it is only effective when injected directly into the blood, is erroneous. It is, no doubt, more certainly and rapidly fatal when it enters the blood direct. It may be eliminated by the excreting organs; and there is, therefore, reason to hope that life may be saved if it can be artificially sustained long enough to admit of complete elimination being accomplished, as in the case of curare poisoning; but from the more complex action of the cobra poison, this remains a subject of doubt. By artificial respiration the circulation has been maintained, both here and in India, by Dr. Ewart and Mr. Richards, for many hours; and in one case, after complete paralysis had occurred, symptoms of reaction and elimination were obtained; but no complete recovery has yet occurred. The doubt still remains whether the nervous system, that has sustained so much damage, is capable of ever resuming its functions, even though elimination be complete.

The so-called antidotes appear to be inert; all that have been submitted to trial, including the intravenous injection of ammonia, have failed to have any satisfactory effect. Artificial respiration has certainly prolonged life, and partial recovery has followed, but no life has actually been saved by it.

The microscopic appearances of the blood were described, but no very remarkable change was observed beyond crenation of the corpuscles or diminished aggregation into rouleaux. Chemical examination of the blood and its gases is still needed, and further analysis of the poison is desirable.

The activity of the poison is scarcely impaired by drying, excepting perhaps so far as regards its local action. Dilution with water, glycerine, liquor ammoniæ, and liquor potassæ, did not destroy its activity, nor did coagulation by boiling in the ordinary way. The boiling for half an hour under a temperature of 102° C. (215·6 Fahr.) seemed to destroy the activity of one specimen which was injected into a bird.

The poison acts on all life, on the lower and higher vertebrata, on the invertebrata, and even on vegetable life; for it retards, although it may not arrest, the germination of seeds. But it acts most vigorously on the warm-blooded animals.

The most remarkable fact connected with it is that

* 'On the Physiological Action of the Poison of *Naia tripudians* and other Indian Venomous Snakes,' II., by Drs. Brunton and Fayrer, Royal Society, Jan. 22.

it has little or no effect on poisonous snakes. They can neither poison themselves nor their congeners, or if at all, very slightly so; whilst the poison acts rapidly and fatally on innocent snakes, lizards, fish, and mollusca.

With reference to the means of preventing death, those that mechanically prevent the entry of the poison into the circulation, such as of the ligature, excision, or cautery are the most reliable, but they are only so when applied immediately.

No means that offer any hope of benefit should be neglected, and it is possible that stimulants such as alcohol and ammonia may be useful; and in some cases, where the poisoning has been severe but not fatal, they may do good and even determine recovery where death would have otherwise resulted. The so-called antidotes, however, beyond any action of this kind that they may possess, are apparently quite inert.

Transfusion of blood was alluded to, and it was observed that the experiments hitherto proposed had not met with success, but that a more perfect way of accomplishing it might be more successful.

FRENCH AFFAIRS.

(From a Special Correspondent, Feb. 20.)

Our scientific bodies pursue their course of commendable activity here, and too much praise cannot be given to our younger and older savants, alike for their singular energy and earnestness, and for the renewed spirit with which they have thrown themselves into the scientific movement of the day, determined to conquer the Germans on this soil at least, and to place France, in truth, at the head of the scientific world, where we all loudly proclaim her to be, in the hope that others will believe us. I trust, notwithstanding the one or two angry remonstrances forwarded to you, and which you were good enough to place in my hands, concerning my suggestions of a few spots in the sun in my last letter, that you will allow me to pursue what I am persuaded is a healthy course, in reviewing the little excesses and defects of my learned and self-satisfied countrymen, while I note their progress.

One of the first sittings of the Académie de Médecine this year (Jan. 20) was occupied by a discussion, which was characteristic of the extraordinary ignorance or egotism, whichever it may be, on which I have before commented, which seems to compel my countrymen either altogether to ignore what is done abroad, or to mention it only as copied from or inferior to French work. In the *British Medical Journal* of last year, Dr. Ferrier, in a very ingenious and careful paper, started the hypothesis that the ammoniacal condition of urine in the bladder was frequently due to the introduction of septic germs by the catheter. He gave examples as well as arguments, and made the sensible suggestion that the sound should always be plunged into boiling water, or treated with carbolic oil, before or after use. M. Pasteur has presented the same theory to the Academy of Medicine, and it has been solemnly discussed at great length as a startling novelty by all our surgical and chemical luminaries. The discussion is quite worth reading, for the question is unresolved, and it was treated with great ingenuity, and even eloquence, by various speakers, including the 'flower of the two academies,' and M. N. Pasteur and M. Dumas, 'the two great masters of contempo-

rary chemistry' (*L'Union Médicale*). Nevertheless, the result was *nil*. Not even an allusion to Dr. Ferrier's practical suggestion of using an antiseptic solution (borax, carbolic acid, diluted oil of cloves, &c.) for the sound in cases of retention or of paralysis of the bladder. Is it not rather humiliating that, from simple ignorance of the most vulgar and accessible facts of foreign literature, 'the flower of our two academies, the Dumas, the Bouillaud, the Guéneau de Mussy, the Baily, the Ricord, &c.,' should be occupied for hours in grand debate on a stale little observation which was a year since relegated to history in a weekly paper issued by thousands broadcast over England, America, and the continent?

I send you a little 'summary of the progress of medicine,' by M. Garnier, which shows you what is considered 'patriotic.' In its exquisite simplicity of unvarnished ignorance and sublimely conscious egotism, it is, I imagine, unmatchable out of these latitudes. In the therapeutic summary there is not a word of croton, chloral hydrate, of apomorphine, of Harley's researches on the preparations of conium, of the researches on the injection of ergot, of Binz's and Baxter's researches on the action of quinine and alcohol. In medicine, not a word of Gull's and Johnson's researches on Bright's disease, of Sanderson's work on septicæmia, or in anatomy, of Klein's splendid investigations on the lymphatics, or Ferrier's, Hughlings Jackson's and Hitzig's revolutionary studies of the anatomy and pathology of the brain. 'Enucleation,' we are certainly told, is a discovery of M. Letiévant, as if Professor Miner's process of ovariectomy by enucleation had not been practised and discussed for the last four years. And so on through the whole catalogue. It is really pitiable, and must give foreigners a far worse idea of the state of science among us than we really deserve.

I do most heartily wish that a copy of your periodical could be presented to every intelligent practitioner in this city, if only that they could see French, English, and German work placed side by side, to discover what sort of a figure we really cut. A great deal of excellent work is being done here, but it is so disfigured by these traits of ignorant egotism, as to confound the real workers in the ridicule justly incurred by these journalistic praters.

CURSCHMANN ON THE THEORY OF FATTY HEART.

Dr. H. Curschmann, of Berlin, makes (*Deutsches Archiv für Klin. Med.*) the following observations regarding a case of fatty heart which was under his care in February, 1870, at which time he was assistant-physician in one of the hospitals of Mayence. The patient was a man aged thirty-two, a waiter, and, during the course of the affection which terminated in his death, at various times came under treatment, both in the wards of the hospital and also as an out-patient. His first admission into the hospital was in February, 1870. His previous health, up to 1868, had always been good. His parents were both living, and in good health. From his fourteenth year he had been a waiter, and during the last five years he had been in various hotels along the Rhine, and had been compelled to labour very actively. He had not been addicted at any period of his life to

* Translated, by Dr. W. H. Ashbridge, in *Philadelphia Medical Times*, January 17, 1874.

the excessive use of spirituous liquors, but, like all his class, had been very irregular in regard to his meals. He had never had syphilis, and had not indulged to excess in sexual intercourse. For two years he had noticed that his strength was failing, that he grew tired upon slight exertion, and suffered from shortness of breath from going up-stairs; but he still continued at his work until compelled by a severe cough, attributed by him to exposure to cold, and an increase of his above-mentioned sufferings, to seek the hospital. At the time of his admission, February 8, 1870, he complained of great weakness, frequent attacks of palpitation, and a constant shortness of breath, which at times increased in severity to a marked extent. His cough was frequent and troublesome, but accompanied with slight expectoration. He was compelled by his dyspnoea to maintain a half-sitting posture; his cheeks and lips were livid, a moderate amount of anasarca was present over his trunk and arms, while his lower extremities were markedly oedematous.

Auscultation of the lungs revealed a catarrh extending even to the finer bronchial tubes. The impulse of the heart could not be distinctly felt through the thoracic walls, and the area of percussion-dullness over that organ was much increased. The amount of urine secreted was small, and of high specific gravity. Under the use of the infusion of digitalis the symptoms ameliorated, the pulse became fuller, the anasarca diminished, and the symptoms of the catarrh of the lungs disappeared. The condition of the heart remained about the same; the impulse was weak and indistinct; the sound feeble, but no murmur could at any time be made out. The man was sufficiently well on the 28th of the month to be discharged, at his own earnest desire.

From the 2nd to the 17th of May he was in the hospital for treatment for a surgical affection, still suffering from shortness of breath and some palpitation, but had been able to work since his discharge, and did not complain in regard to his general health. An examination of the heart gave the same result as on previous occasions; the pulse was small and soft, and in a state of rest, scarcely 60.

On June 2 he again presented himself at the hospital, in a much worse condition than at the time of his previous admission. The symptoms were essentially the same as those of the previous attack, but more intense in character. The urine was scanty, and contained albumen; but after the use of digitalis the normal amount was secreted, and the albumen no longer appeared.

On July 4 the patient, much improved, was sent to his home in the Thuringian Forest, in the hope that he would there make more rapid progress towards convalescence.

On September 19 he came direct from his home to the hospital, and was again admitted, in a much worse condition than at his previous sojourn.

On October 5, in spite of repeated prohibition, he rose from his bed and went to the closet, where he suddenly fell dead.

At the necropsy the body was found oedematous, the skin livid. Upon opening the skull, the meninges were found filled with blood, the brain-substance strikingly light in hue and oedematous, and the ventricles somewhat enlarged and filled with a clear fluid.

The pericardial sac was not changed, and the contained fluid was of normal quantity and character. The circumference of the muscular substance of the

heart was quite double its normal size; the increase of the ventricles being proportional. The ventricles, as well as the auricles, were distended with fresh, dark blood. From the right ventricle the clots extended into the pulmonary artery, completely filling it and its larger branches. The walls of the cavities of the heart were thinned: the thickness of the wall of the left ventricle was one centimètre, that of the right half as much, and in some places but one-third of a centimetre. The muscular tissue in almost every portion was of a reddish-yellow colour, at some places quite yellow, very relaxed, and quite readily torn. These changes were more advanced in the right than in the left ventricle. The papillary muscles were long and thin, and when cut across showed yellow streaks. The valves of the heart were unchanged, of normal thickness, and capable of perfect closure. A microscopic examination showed that the muscles had undergone fatty degeneration, and that the striæ of the fibres were indistinct and had in some places vanished. The aorta and its larger branches, so far as examined, were unchanged. In the kidneys, beginning fatty degeneration was found.

The diagnosis of dilated heart with fatty degeneration was made at the time of the patient's first visit to the hospital. The fact of the dilatation was established by physical exploration; and the feeble pulse, and absence of impulse in conjunction with an organ increased in size, manifested a diminution of power. The question whether the diminished frequency of pulse is of pathognomonic value, as asserted by English authorities, is not discussed. No cause sufficient to account for the disease of the heart was discovered at the *post mortem* examination. No valvular affection of the heart was present, nor was there anything that could interfere with the course of either the greater or the lesser circulation. The supposition that was made during life, that the changes in the liver and kidneys were secondary in their character, was also supported by the autopsy. The first change that took place in the heart was an excentric hypertrophy, affecting both sides, followed by fatty degeneration and consecutive thinning of the muscular walls of the heart. This conclusion would have been warranted by the anatomical conditions found at the examination, even if accurate and continued observation during life had been wanting, for it would not be possible that so great a dilatation could take place in a heart of normal size. It would be possible only in a heart which was already increased in size and then underwent dilatation. In answering the query as to the cause of original excentric hypertrophy, it must be established, as it was by the autopsy, that there existed no perceptible mechanical cause. But, inasmuch as the microscopic examination revealed only a true muscular hypertrophy, and as this form of hypertrophy is, as yet, attributed only to mechanical causes (true hypertrophy from work, of Rindfleisch), something which is not demonstrable on the cadaver must have acted during life in a similar manner. This being premised, it is easy to bring forward as the origin of the excentric hypertrophy in his case a cause similar to that given in the observations of Traube—namely, severe and prolonged bodily exercise.

Upon the supposition that this was the cause of the hypertrophy, it is easy to explain the proportional involvement of both sides of the heart. The continued muscular effort of the left side, together with the reaction from the increased pressure of the column of

blood in the aorta and its branches, would furnish the cause of the increase of the arterial side of the heart; while upon the other side of the organ a like effect would result from the increased activity of the respiratory function, and consequent disturbance of the lesser circulation. After the hypertrophy had existed for some time, the patient meanwhile continuing to make the exertions to which his diseased state was due, fatty degeneration began. At the time of the first admission of the patient into the hospital, eight months before his death, his heart, although in a state of fatty degeneration, still had power enough to enable him to attend to his work until an intercurrent attack of bronchitis overcame the force of the diseased and weakened organ, and forced him to his bed. At the time of his death, the relaxed heart had still force enough to maintain the circulation while the patient remained quiet in the horizontal position; but when he stood up and attempted to walk, the task was too great for it: a sudden paralysis of its functions took place, and an acute œdema of the brain occurred, resulting in instant death.

MEDICINE.

THE DIAGNOSTIC LAWS OF THE LOCALISATION OF CHRONIC DISEASES OF THE NERVOUS SYSTEM. BY DR. M. BENEDIKT, PROFESSOR IN THE UNIVERSITY OF VIENNA.*

I will here first lay down the most important laws of localisation according to the aggregate and individual symptoms, and then pass on to the diffusion-law. The scales fell from my eyes when I examined, in the light of this law, many aggregates of symptoms, and criticised disputed questions; and I believe that I am not mistaken in saying that, since Bell's law, no principle has been so well adapted to render matters clear. The endeavours to refer all the symptoms in an aggregate (*Symptoms-complexe*) to one focus of disease (*Herderkrankung*) has led to the greatest confusion. I call to mind only the various localisations of foci of disease in tabes by Remak, the contest on localisation in aparetic dementia, in the lesser degrees of chorea, &c. The purport of the diffusion-law is this:—"When a combination of symptoms and aggregate of symptoms belonging to known and different localities is present, each must be localised in its recognised part."† Before this law can be clearly set forth in all its points, we must agree on the laws of localisation which may already be laid down in accordance with the present state of science. These special laws for individual aggregates of symptoms follow from the first general law of diagnosis, that the disease must be localised at the point of union of all the fibres whose irritation or paralysis produces the symptoms in question. This is the concentration-law of Bell and Rom-

berg. By this law I was enabled, even before a pathological anatomy of these diseases existed, to localise with accuracy progressive muscular atrophy, spinal paralysis in children, and progressive paralysis of the cerebral nerves.

The aggregate and individual symptoms, regarding the localisation of which we have certain evidence, are the following.

1. Paraplegia occurring simultaneously and symmetrically indicates disease of the anterior half of the spinal cord. Paraplegia of the legs usually indicates disease at the lumbar enlargement: paralysis of the arms, disease at the cervical enlargement of the cord.

The cerebral symptoms of paraplegia from disease of the spinal column usually indicate an affection of the roots of the nerves, and these are almost always at first unilateral: e.g., unilateral ischialgic pains in disease of the dorsal and lumbar vertebræ; intercostal neuralgia in disease of the dorsal vertebræ; cervicobrachial neuralgia in disease of the cervical vertebræ. Further, the unilateral development of progressive muscular atrophy, &c., may have its origin in disease of the lower cervical and upper dorsal vertebræ; the symptoms become bilateral at a later period, but it must not be forgotten that the spinal symptoms in spondylitis are not in proportion to the pressure of the distorted vertebræ, but may arise from myelitis.

2. Cerebral paraplegia is evidently composed of two separate hemiplegiæ.

3. Characteristic symptoms of tabes indicate disease of the posterior half of the spinal cord. Spinal contractions and spinal epilepsy are connected with disease or implication of the lateral columns.

4. Progressive muscular atrophy indicates disease of the grey substance of the spinal cord in the neighbourhood of the central canal, or in any case diffuse disease of the anterior roots; and the same is indicated by the supervention of muscular atrophy on an aggregate of spinal symptoms. I will discuss the symptoms of disease within the cord more at length in a special chapter. I will there endeavour to show that the modern doctrine that progressive muscular atrophy is a primary myositis is clinically untenable; and I hope also to prove that not the great motor cells, but other cells of the grey substance, must have an influence on nutrition.

5. Hemiplegia, with cross hemianæsthesia, indicates disease of one lateral half of the cord. From the analogy of hyperæsthesia after section of the sympathetic in the neck, it is beyond doubt, that hyperæsthesia of the same side in unilateral disease of the spinal cord arises from destruction and paralysis of the vaso-motor nerves.

6. Bilateral neuralgia, with wasting of the arms or legs, indicates disease of the posterior roots, and of their extension into the posterior columns, especially the inner radiating fibres (Charcot). (It is almost superfluous to point out that neuralgia of the limbs on the same side indicates an affection of the brain.)

7. Progressive paralysis of the cerebral nerves indicates more or less diffuse disease of the nuclei of these nerves, or diffuse disease of the peripheral nerves of these nuclei, principally from chronic basilar meningitis.

8. Paraplegia of the tongue (alalia) and of deglutition, indicate disease at the level of the hypoglossal and glossopharyngeal nuclei. This fact is especially important with regard to the localisation of disorder

* *Allgemeine Wiener Medizinische Zeitung*, nos. 1, 2, 3, 1874. From an *Introduction to the Pathology of the Nervous System and to Electro-Therapeutics*, now in the press.

† The author uses the terms diffusion-law (*Diffusions-gesetz*) and law of diffusion (*Gesetz der Diffusion*) in two different senses; the former in that indicated here, the latter as meaning the manner in which disease is diffused from one part to another, e.g., according to the manner in which the blood-vessels are distributed, &c.

of speech in mental disease; and, since I pointed it out in 1871, it has been established by Lubimoff. The facial paralysis, usually unequal on the two sides, occurring often along with complicated cerebral symptoms, is to be attributed to simultaneous disease of both nuclei of the facial nerves.

9. Hemiplegia, with cross facial or oculo-motor paralysis, indicates disease of the pyramidal fibres at the height of the nuclei, or at the points of exit of the nerves in question.

10. Hemiplegia, with hemianæsthesia on the same side, indicates disease of the fibres of the pyramids at the point in the medulla oblongata where the stimulation of the sensory fibres is completed, up to and including the radiation of the outermost bundle from the pes of the crus cerebri to the medullary masses of the hemispheres behind the lenticular ganglion. According to Türck's researches, however, it is a question whether the limitation of this region can be made so exactly as has been done by Meynert. Charcot, at least, holds to Türck's view.

11. Hemiplegia with incomplete paralysis of the facial nerve (the upper branches remaining free), indicates disease of the central motor ganglia of the brain. As I have seen complete paralysis of the facial nerve in cross paralysis of the oculo-motor and of the extremities, it is evident that the fibres for the upper facial branches separate from those of the lower branches and the pyramidal fibres, above the nucleus of the oculo-motor nerve, and radiate separately into the central ganglia. Further, electric investigation in cases of paralysis leads to different conclusions as to the localisation of the disease within the cranium. A fall of the electro-muscular contractility indicates that the disease is outside the central ganglia; if, on the contrary, it remain intact when the disease is of long duration, it indicates disease within the ganglia.

12. Hemiplegia with convulsions indicates disease to the central side of the central ganglia, in the fibres of the corona radiata, or in the hemisphere itself. Paralysis not preceded by convulsions arises from disease of the hemispheres.

13. Aphasia associatoria, *i.e.* disturbance of speech with complete or relative retention of the movability of the tongue, and of the power to attempt speech, indicates disease of the region of the claustrum, which, according to Betz, represents a ganglion of the hypoglossal nerve at its posterior part.

14. Hemiplegia with convulsions and aphasia associatoria indicates disease of the frontal lobes, near the convolutions of the island of Reil.

15. Hemiplegia with convulsions and bilateral neuro-retinitis denotes disease of the parts of the hemispheres above the optic thalami, and in any case above the corpora quadrigemina.

16. Cerebral convulsions without paralytic complications are to be referred to the posterior lobes.

17. Psychical symptoms always denote primary or secondary disease of the cerebral hemispheres or of the cortical substance. Motor and psychical disturbance and mania are especially to be localised in the anterior half of the brain; disturbance of the emotions in the posterior part (Schroeder van der Kolk). This is true only of purely psychical symptoms. Most of the symptoms of paralytic dementia are, as we shall presently see, to be localised elsewhere.

18. Statical vertigo (the drawing to one side) is a cerebellar symptom in the wider sense—*i.e.* of disease of the cerebellum and its extension into the cerebral peduncles.

19. Motor symptoms of irritation in diseases of the central nervous system are not self-evident indications of disturbance of the motor-nervous system, in Bell's sense, but are eventually connected with the co-operation of organs in juxtaposition (the posterior and lateral columns, the cerebellum in the most extended sense of the word, the cerebral hemispheres, &c.). Of tetanus, the special form of contraction and epilepsy, static and cerebral convulsions, this is undoubtedly true; and even the peripheral forms of spasm (*e.g.* convulsive tic) may be shown to have an excito-motor starting point. In all forms of spasms we see, however, that they are essentially connected with the stimulation of the organ of volition or with irritation conveyed through the spinal cord to the periphery. Spinal epilepsy also, as it occurs in paralysis agitans, or in diffuse sclerosis of the central nervous system, and in purely spinal symptoms (as an expression of sclerosis of the lateral columns), is under the influence, on the one hand, of irritation of the voluntary fibres, and on the other of reflex spinal irritation. A localisation of symptomatic spinal epilepsy as an unity would be impracticable. We will return to the probable localisation of paralysis agitans in a spinal section. As a general fact, the following may be stated.

20. The influence of irritation of the sensorium on a phenomenon of motor irritation, and on a pathological motor phenomenon, does not generally prove that this symptom must be of cerebral nature; and motor symptoms of irritation indicated as central are essentially conditional on irritation, or at least co-operation, of the sensitive and sensorial parts of the nervous system. It is generally to be observed that a large group of motor disturbances are not the result of disease of the motor parts (of Bell), but of disease of laterally contiguous parts of the nervous system having motor influence.

I first introduced the fact into pathology, that tabetic motor disturbances were dependent on a regulating motor system having its course within the spinal cord; and Cyon's researches, suggested by me, have made this idea the common property of all. The cerebellum also is a regulating organ of this kind, whose function is as yet little known, but which exercises a stimulating or depressing influence on the performance of the functions of the motor nerves; and motor adynamia is a constant symptom of severe diseases of the cerebellum, especially of its hemispheres. We see, further, that patients with cerebral disease are either drawn to one side, chiefly from unilateral convulsion or paralysis of the muscles of the trunk; or that, at least, there is a feeling of being pulled to one side, which is to be explained by supposing that, in consequence of involuntary increase or decrease of the functional power of the muscles of one side, the muscular sense of equilibrium is destroyed.

We further see, in disease of the hemispheres, that convulsions occur, and, according to the researches of Hitzig and Frisch, that disturbances of the associations of movement take place, which are neither associated into spasm nor with paralysis. The corpora quadrigemina also, with their peripheral prolongations into the so-called motor tract, appear to play an analogous part with regard to motion; *i.e.* their stimulation keeps up the function normally, or produces spastic increase of it, and their paralysis produces disturbance of the motor equilibrium in some way as yet unknown (I imagine that chronic

inflammation of the corpora quadrigemina produces paralysis agitans).

With regard to the localisation of specially associated movements—such, for instance, as occur in chorea major through irritation of portions of the brain, it is to be observed that these parts have the same relation to the movements in question as the claustrum, and that we have reason from analogy to localise the association of movements in the central ganglion. This view is supported by the anatomical fact, that the whole central ganglion, the optic thalami, the corpora quadrigemina, the corpora striata, the lenticular nucleus, and the claustrum, are one connected mass of grey matter; and we may hence conclude that this entire mass possesses analogous functions, and that the centre for the association of movements lies here. As with the claustrum in relation to speech, so with the corpora quadrigemina, it is known that they are the centre of association for the muscles of the eye.

(To be continued.)

DISEASES OF CHILDREN.

ON DIABETES MELLITUS IN CHILDREN.
BY DR. HIRSCHSPRUNG OF COPENHAGEN,* WITH CASES BY DR. BUDDE OF COPENHAGEN,† AND DR. SCHOUBOE OF KALLUNDBORG.‡

(Concluded from page 97.)

Dr. Hirschsprung next relates the case which he himself observed.

12. Marie Petersen, aged eight years, was admitted into the Children's Hospital on September 5, 1872. Her height was 42 inches, and her weight a little more than 37 lbs. (English). She came from a humble home, the conditions of which, however, were tolerably good. She had a sister aged fourteen, in good health, and a brother only four weeks old. Her father was healthy; the mother had always been weak since the patient's birth. She suffered from dryness of the mouth, thirst, and frequent micturition even at night. These symptoms, with her weakened state, led to an examination of the mother's urine, which did not contain sugar. The patient had been nursed by the mother, and was weaned when she was a year-and-a-half old. She walked in good time, cut her teeth without trouble, and seems to have been a healthy and strong child. She had had no other illness than a moderately severe attack of whooping cough in 1870. In the course of the summer of that year she is believed to have fallen off somewhat (but this is not certain), and to have been more thirsty than other children; but she did not ask for drink during the night. It was not, however, until the last fourteen days that, without evident cause, symptoms of disease were observed. She now began to complain of pain in the front of the chest, could not bear to go upstairs, felt always dry in the mouth, was very thirsty, and could eat at any time. At the same time, she began to pass urine very frequently, and in great abundance—eight or nine times in the night in the week before her admission; she slept in the intervals. Micturition was not painful: nor was there any excoriation. She had one or two ordinary stools daily; she had felt dull, and complained sometimes

of headache, but mostly, it was said, of pain behind the sternum. In consequence of her illness she had become somewhat thin; but her strength was still good, and she was well-developed for her age, with blue eyes and fair hair. Her face was rather broad, as was also the vault of the skull; there was no appearance of scrofula; the skin was of pale colour, inclining to blue; the pulse 104; respiration 32; tongue pale, clammy, with a slightly streaked epithelial covering. She was about to change her teeth; several of the milk-teeth were decayed. Her look was lively, and her temper good. There was no disturbance of vision or of any other sense. The temperature was normal. On the right side of the neck there was a weak continuous murmur; otherwise nothing special was heard with the stethoscope. The abdomen was distended, and tympanitic at the upper part; the liver projected an inch forward from the ribs, and reached to the fifth rib. The urine, before treatment was commenced, contained 8.62 per cent. of sugar; its reaction was sour. That passed by day was of a dull yellow colour, a thin layer of it was as clear as water, and the specific gravity was 1.030; that passed at night was yellow, had a stronger urinous smell, and a specific gravity of 1.034.

It would be tedious to give the long uniform daily report of the treatment; and I will therefore merely give a summary of some particulars. The child steadily lost flesh and strength, and died on the last day of the year, having lived between four and five months from the time when the disease was first recognised. In the last weeks, evidence of pulmonary phthisis was observed. In the course of her illness she lost 8½ pounds (Danish) of weight, rather more than a quarter of her weight when she was admitted.

The disease showed quite the same type as we recognise in its most perfect form in adults. It seems on the whole, from the preceding observations, that in the child we do not meet with those milder cases, sometimes spontaneously intermitting, or, at least, readily amenable to treatment, which are fortunately not uncommon in the adult. With its high percentage of sugar, the case was from the first characterised as one of great severity; the percentage was sometimes higher (the maximum being 10.86) while it was never under 5, except on the last days of the patient's life, which presented peculiarities in several respects. The circumstance, that the percentage of sugar could never be reduced below 5, even under an absolutely animal diet, showed that the disease belonged to that form in which the excreted sugar is not only derived from the carbo-hydrates taken with the food, but also from the decomposition of albuminous material; and a further proof of this is approved by the fact that on one occasion the patient took nothing but water for twenty-four hours, during which time the quantity of urine amounted to 500 grammes, and contained 5.44 per cent., or 27 grammes of sugar, which must have been formed at the expense of the tissues of the body.

The amount of urine passed was in proportion to the thirst, which was sometimes unquenchable. The greatest quantity passed in twenty-four hours was 6,000 cubic centimètres (more than 21 ounces by measure). The specific gravity almost constantly ranged between 1.030 and 1.035; on single days only it was as high as 1.040 or as low as 1.027, except during the last days of life.

On eleven days no correct observation was made; during the remaining 103 days of her stay in the

* *Ugeskrift for Læger*, third series, vol. xv. no. 25.

† *Ibid.*

‡ *Ibid.* no. 30.

hospital, she passed 28,470 grammes of sugar (nearly 63 pounds). The greatest quantity discharged in twenty-four hours was 556 grammes (about 20 ozs).

On some days, when she first came into hospital, and also towards the end of life, nocturnal enuresis was reported.

There was obstinate constipation, which resisted the strongest purgatives, during the whole of her life in the hospital. The abdomen was constantly more or less distended and the intestines filled with air, and the ascending colon, but especially the descending and the sigmoid flexure, were felt to be full of scybala.

The temperature was most frequently normal or a degree below, without any fixed type; on some days there was a rapid rise of a degree in the morning or evening, for which no cause could be assigned. During the whole illness there was no disturbance of the nerves, and the patient was conscious nearly to the time of death, which took place without pain.

During the last four days of life, the patient had little appetite, and her thirst was slight. She passed 1,000 cubic centimètres (nearly a quart) of urine daily, which showed a steady decrease of specific gravity and of the percentage of sugar. The urine passed in the last twenty-four hours had a specific gravity of 1.020, and contained 34 grammes (524.75 grains) of sugar. On December 26, the temperature, which was 95° Fahr. in the morning, rose to 104° Fahr. in the evening; it remained high on the following days, and on the evening before death was 105° Fahr., and an hour before death 104°.

In the long period during which the disease was under observation there was ample opportunity for trying the effects of the plans of treatment most recommended. At first, Bouchardat's treatment (animal diet) was followed, in conjunction with the administration of Carlsbad water. This plan appeared to diminish the thirst, and to reduce the amount of urine and the percentage of sugar (the latter, however, never being below 6.25) more than any of the plans which were afterwards adopted. But at the same time the appetite was lost, constipation became extraordinarily obstinate, and after twelve days I passed to the use of milk-diet. After a short time, this had the same result as the meat-diet; she became unable to take the milk, and for twenty-four hours had no food. After this she began to use arsenic (arseniate of soda) with mixed diet. Her appetite became voracious, she ate day and night, and felt comparatively well; but at no period of the illness was the amount of sugar excreted so great as under this treatment. The arsenic was followed by opium, which gave comparatively better results, especially, as it seemed, in producing alvine evacuations; but it made her dull and sleepy, so that she could scarcely move. Glycerine seemed only to make her condition worse; and, at last, convinced of the inutility of every remedy, I gave up all treatment, and, up to the end of her life, allowed her to have whatever gratified her appetite. I give below a view of the average secretion of sugar under the different plans of treatment.

| | Duration in days. | Sugar in grammes daily. |
|----------------------------------|----------------------|-------------------------------|
| Bouchardat's treatment | 12 | 152 |
| Milk diet | 7 | 200 |
| Arsenic | 23 | 364 |
| Opium | 13 | 285 |
| Glycerine | 12 | 292 |
| Ordinary diet | 12 | 331 |
| Do. do. | 2 | 279 |

A necropsy was made twenty-five hours after death by Professor Reisz. Notwithstanding the most careful examination of the organs to which an essential part in the genesis of the disease has been attributed at various periods, the result was simply negative; and the only pathological change consisted in disease of the lungs, which, however, was secondary and did not appear till towards the end of life. No tuberculous deposit was found in these organs; but they presented in the upper lobes pneumonic condensation with bronchial dilatation.

[Dr. Hirschsprung appends to his report a table of observations taken daily from Sept. 8 to Dec. 31, showing the quantity of urine, its specific gravity, the percentage of sugar, the amount of sugar in grammes, and the morning and evening temperatures.]

Dr. Budde reports a case of diabetes in a boy aged eleven, treated with absolute animal diet and glycerine. He says:

As a contribution to the very scanty literature of diabetes in children, I may relate a case, which is remarkable not only because the patient was a male, but because the disease belonged to the milder form, in which the discharge of sugar may be prevented by an absolutely animal diet; and the treatment adopted was followed by as complete recovery as can take place in diabetes. All the cases hitherto reported have belonged to the more severe form; treatment has had little or no effect; and death has occurred in all in a comparatively short time.

The patient was a boy aged eleven, from one of the chief towns in Funen. There was no hereditary tendency to disease in his family, and he himself had hitherto always enjoyed good health. Early in December, 1872, without any apparent cause, he began to suffer from thirst and polyuria, had nocturnal enuresis, and rapidly became very dull and weak. The disease became rapidly worse; he complained of unquenchable thirst; the discharge of urine became excessive; micturition was very frequent both by day and by night; and, in spite of eating voraciously, he lost flesh and strength more and more. In short, the symptoms assumed a very threatening character, and the medical men who had been consulted sent him to me.

He was much exhausted by the journey; and was so prostrate and weak, that he could scarcely stand upright. Emaciation was excessive; the muscles were thin and relaxed; the skin was dry and rough, the tongued and dry, with prominent papillæ. The lungs were healthy, the liver was not enlarged. The urine presented the ordinary characters of diabetes, and contained eight per cent. of sugar.

It is evident that I could only form a very unfavourable prognosis, partly because this is generally bad in diabetic children, partly because the disturbance of nutrition had become so severe, and finally, because the amount of sugar in the urine was so great. With regard to treatment, it might be considered fortunate that his appetite was good, and that the digestive functions were unimpaired. There was, therefore, hope that the use of a purely animal diet might restore nutrition, and at the same time more or less reduce the glycosuria. I therefore ordered a diet of this kind, adding glycerine, in doses of 30 grammes (about an ounce) daily, in 200 grammes of water and 5 grammes (76 grains) of tartaric acid; a medicine the use of which I had several times seen to be attended by benefit.

The results of this treatment were good beyond all expectation; all the diabetic symptoms were soon

relieved, the thirst and polyuria completely disappeared, the muscles increased in size, and he felt himself again strong and well. The sugar in the urine fell on the tenth day to two per cent., and on the eleventh day the urine contained no sugar.

Five days after the commencement of the treatment, he weighed $61\frac{1}{2}$ Danish pounds; a fortnight later he had gained 14 pounds, and at the time of the report he weighed 80 pounds. He is now well, and has a healthy and robust appearance; but two slight errors in diet which he has committed have shown me, that the glycosuria returns under the use of a comparatively small quantity of carbohydrates. I am endeavouring to find out the diet which suits him best, and especially how much saccharine and starchy food he can use without a return of the glycosuria.

Dr. Schouboe writes as follows.

The daughter of a small farmer, seven years old, the only child of parents in tolerably easy circumstances, residing in a healthy home, having a somewhat delicate appearance, had in August, 1872, a febrile attack—heat and sweating alternately with cold; at the same time she had severe cardialgia, and the bowels were rather constipated. She had been more or less ailing for a year. Under the use of quinine and iron she was better in about a month; but she again had pain in the abdomen, which was hard and distended; the stools were solid, usually covered with bloody mucus. There was no trace of fever, but she was always very thirsty, and had a great appetite. She passed much urine, especially at night, and often was thus prevented from sleeping until the morning; in the forenoon, the discharge of urine was less. When examined on September 19, the urine was of tolerably natural appearance, but contained an abundance of sugar. She was now put on a nearly absolute animal diet, with a small quantity of bread containing bran; for drink she had claret and water, a little milk and water, and a little coffee (without sugar). Quinine and iron were prescribed; also opium and laxatives. Under this treatment she became better; her appetite was less voracious, the thirst diminished, and the diuresis was so far decreased that she often passed urine only once in the night. The stools were also improved, and were no longer bloody; her strength increased, and she did not complain of pain in the abdomen. The quantity of sugar in the urine was less. She continued in this state until December, when I again visited her. She again had pain in the abdomen, which was harder (there was no sign of a tumour at any time); the stools were solid; the diuresis had not increased, nor had she thirst. There was a little albumen in the urine, tending to an increase of sugar, and there was slight œdema of the face and hands. She again became better, and in January could often sleep all night without being disturbed to pass urine; the sugar decreased, and the albumuria and œdema disappeared. In February, after she had been about a fortnight without medicine, her condition was fairly good, and she was able to go out when the weather was mild. The appetite and thirst were somewhat variable; sometimes they increased (always together) and soon again became natural. In March she again became worse; the diuresis and thirst increased, as well as the quantity of sugar, and she lost appetite and strength; she was somewhat susceptible of cold, and usually had headache, but was not confined to bed until the last days of her life. On the 29th, it was reported to me that

she had been much worse for two days. I therefore visited her the same evening, but found her already *in articulo mortis*, cold and pulseless, with very difficult whistling respiration. I learned that she had sat up two days previously, but on the following day had violent dyspnoea, with some cough. She was conscious till the evening, when she began to be delirious and afterwards fell into a state of coma. She died the same night.

During this rather long illness, neither cataract nor gangrene was observed. The urine was tested for sugar every two or three weeks, but no quantitative analysis was made. The quantity of urine was not measured; the mother only stated how many potsful had been passed in the day. The analysis and measurement necessary for a true accurate history of the case could not be well carried out, as the patient lived in the country, and could only be heard of or seen at long intervals.

SURGERY.



VALERANI ON OPERATION BY THE BLOODLESS METHOD.—Dr. Valerani reported to the Royal Academy of Medicine in Turin, on December 22, some cases in which he had operated by the bloodless method (*Gazetta delle Cliniche*, no. 52, 1873). The first case was one of amputation of the arm in a young woman, in whom poverty of blood and debility rendered it necessary to avoid the least loss of blood. A vast sloughing ulcer had laid bare a great part of the right humerus; and, in spite of all treatment, there was reason to fear that the process of destruction would extend to the blood-vessels and produce hæmorrhage. The bone was in a state of necrosis, and was bent on itself. Although it was not possible to apply a bandage, as if the limb were sound, Dr. Valerani tried elastic compression; and, having driven out the venous blood as well as he could, and tied the elastic tube round the limb at the upper part, he amputated the limb by the circular method close to the surgical neck of the humerus. In spite of the difficulty of applying the elastic bandage, the result was very satisfactory, a few drops only of blood being lost. Nothing afterwards occurred to interrupt the favourable progress of the case.


Dr. Guaschino had applied the elastic bandage in a case of amputation of the leg for severe disease of the tibio-tarsal joint. He affirmed that he performed the operation just as on the dead subject.

Dr. Valerani reported also another case, showing the value of elastic compression, not only in amputation but in other important operations. A woman aged forty-five, from Casale, was admitted into hospital under his care, on November 19, with an aneurism on the left popliteal space. She first perceived it little more than a month previously, and it had increased rapidly, producing tingling in the limb, and impeding motion. Her general health was very good; but menstruation had ceased rather early. She had had one child when she was about twenty-three or twenty-four years of age, and had had no illness of importance. The aneurism was of the size of a large fist. Digital compression for three or four hours at a time was tried for some days; but, as this was troublesome to her, and there was a deficiency of a sufficiently intelligent staff of assistants, it was determined to tie the femoral artery. The compression had, in the meantime, led to enlargement of the

collateral branches, and has thus placed the limb in a more favourable condition for operation. The ligature was applied on November 25, in the apex of Scarpa's triangle. Before the operation, an elastic bandage was applied to the limb, and compression made by the elastic tubing at the upper part; by this the tissues were rendered almost exsanguine, and the vessel was easily found, though buried in a thick layer of fat.

The priority of the method, generally attributed to Esmarch, is claimed by the Italian surgeons, as well as the elastic ligature described by Dittel, for Dr. Grandesso Silvestri. A. HENRY, M.D.

MENZEL ON REMOVAL OF THE TONGUE BY A MODIFICATION OF REGNOLI'S OPERATION.—Dr. Menzel, of Trieste, describes (*Gazzetta Medica Italiana-Lombardia*, no. 2, 1874), two cases of removal of cancer of the tongue. In his introductory remarks, he says that, while Regnoli made a longitudinal incision from the chin to the hyoid bone, and another along the lower edge of the jaw, thus, , Czerny has modified the operation by omitting the longitudinal incision, and ties the lingual artery. His incision has this shape . Billroth, in ten cases on which he has operated, has also made only the semi-elliptical incision; he ties the lingual artery in the wound itself, before excising the tongue. Dr. Menzel, in his cases, followed Czerny's modification.

The first case was that of a man named Lodovico Vogelhaupt, aged sixty, tall, rather thin and pale, who was admitted to hospital on April 3, 1873. For three months he had had difficulty in moving the tongue, and complained of very severe pain in the left occipital region. At first sight the tongue appeared healthy; but, on pressing it down with a spatula, the margin behind the left palato-glossal arch was seen to be irregular, tumid, and somewhat ulcerated; and the part was felt by the finger to be the seat of rather extensive induration. The next day, the patient having been narcotised, Dr. Menzel tied the left lingual artery, having made an incision parallel to the greater cornu of the hyoid bone. A semi-elliptical cut was then made along the edge of the lower jaw, and was carried down on the left side to the incision made to reach the lingual artery, so that the incision had this form . The floor of the mouth was then cut away from the lower jaw, and the tongue was drawn out by Museux's forceps. As the affected part, however, was not sufficiently brought into sight, the cancer extending behind the palato-glossal arch, Dr. Menzel divided this with two strokes of a pair of scissors. This enabled the tongue to be brought well forward, and the left half of the base of the tongue, with the diseased mucous membrane, was removed by means of scissors. Scarcely a drop of blood was lost. The patient recovered from this operation; his deglutition was free, and his speech somewhat impeded, but intelligible. He was able for a time to follow his occupation as a carpenter, but was again admitted into hospital six months after the operation, with a return of the disease.

The second case occurred in a sailor named Spirdione Muisan, aged sixty-five, who came into hospital with cancer of the tongue of five months' standing. The whole base, posteriorly to the palato-glossal arches, was knobby, hard, and ulcerated, mostly on the left side. The patient was the subject of emphysema and bronchial catarrh, and had had three

long attacks of ague. Dr. Menzel, having narcotised the patient, made two incisions, parallel to and above the hyoid bone, and tied both lingual arteries. He then cut into the cavity of the mouth by a semi-elliptical incision along the jaw, and removed the whole tongue close to the epiglottis. The patient appeared to be going on well, when, on the thirtieth day, the bronchial catarrh and dyspnoea increased, diarrhoea set in, and he died two days afterwards.

Dr. Menzel remarks that complete extirpation of cancer of the base of the tongue, even extending to the adjacent parts, may be performed easily by Regnoli's method, and that this operation affords hope in many cases of cancer which would formerly have been abandoned to their fate. Langenbeck has observed that the prognosis is more favourable in extensive than in limited cancer of the tongue; no doubt because in the latter case surgeons have been accustomed to remove the sound tissues too sparingly. In cases of cancer of the breast, most surgeons remove not only the tumour but the whole breast, including the skin; and local returns of the disease are more rare and slow than in the case of the tongue. It would perhaps be wise to proceed in the same way in cancer of the tongue, and to remove the entire organ in all cases.

Regnoli's method seems to Dr. Menzel to afford the advantage of allowing the escape of secretions from the mouth. A. HENRY, M.D.

PANAS ON SECTION OF THE BUCCAL NERVE BY THE MOUTH.—Dr. J. Panas, surgeon of the Lariboisière, has communicated to the Academy of Medicine (Dec. 23, 1873) an account of the section of the buccal nerve from the mouth, with operative rules, which, he says, are not given in books of operative surgery.

Only one procedure has been described thus far, and by this the nerve is sought for by dissection from the skin to the deep surface. It may be described as the proceeding of M. Michel, of Strasbourg, who first in 1856 performed section of the buccal nerve. A description of it is found in the theses of Voisard (Strasbourg, 1864) and in those of Gaux (Strasbourg, 1866) as well as in the work of Letiévant (*Traité des Sections Nerveuses*, 1873). According to M. Panas, Nélaton made the first attempt to divide this nerve from the mouth in 1857, and this procedure was repeated a second time by Nélaton in 1864 (*Bulletin de Thérapeutique*), but of these efforts there remains no trace in rules for the performance of the operation. M. Panas has now drawn up the following description of the operation of intrabuccal section.

First Stage.—The patient being seated facing the light, and having the mouth largely opened and well-lighted by the aid of Lier's gag, applied at the commissure on the side of the operator, the surgeon places the extremity of his left index finger towards the middle of the coronoid border of the jaw. He makes a vertical incision two and a half centimètres long, parallel to his nail, commencing at the middle of the last upper molar, and terminating at the last lower molar. This incision should only divide the mucous membrane.

Second Stage.—The buccinator muscle being thus uncovered, all the fibres seen are divided vertically layer by layer, in such manner as to avoid injuring the buccal nerve immediately subjacent, and the fatty pad of the cheek.

Third Stage. The nerve is then looked for. It passes

transversely from behind forward, following a line drawn from the coronoid border of the jaw and terminating at the commissure of the mouth. A little blunt hook passed into the middle of the incision, made according to the preceding rules, enables the nerve to be found easily, after which it is divided by a pair of blunt scissors curved on the flat. The only vessels of any importance which are necessarily opened, are, the buccal arteriole and venule, satellites of the buccal nerve. Torsion arrests hæmorrhage. The little jet from this artery, and the sensation from pulling on the nerve, easily convince the operator that he has found the nerve; the loss of sensibility following the section confirms the evidence of the completion of the operation. In order to be sure of dividing all the filaments of the buccal nerve, it is well to incise the buccinator to the whole extent of the wound made in the mucous membrane, and, if necessary, even to penetrate the fatty cushion of the cheek. The advantages of this method are: that it is quick and certain; that it produces no cicatrix and avoids deformity; that no risk is incurred of wounding the facial artery or Stenon's duct. M. Panas has performed the operation, with facility and with a result successful for the time at least, on a woman suffering from obstinate neuralgia of twelve years standing. In all, M. Panas enumerates only seven operations of this sort: two of Michel, one successful; two of Nélaton, one successful; two of Letiévant and Vallette, one successful. The results of the operation then are uncertain, but there is encouragement to employ it in desperate cases.

PETER ON POLYPIFORM VEGETATION OF THE TRACHEA AFTER TRACHEOTOMY.—Dr. Peter called the attention of the Société Médicale des Hôpitaux, on December 26, 1873 (*L'Union Médicale*) to the details of a case in which tracheotomy had been successfully performed on a child aged three, attacked by croup. The cannula could not be removed for three months, as each attempt to do so produced an access of suffocation. Finally it was removed; but it was observed that in any rapid effort, or in attacks of anger or alarm, suffocative dyspnoea was brought on. Finally, in such an attack, the child died suddenly. There was found at the inferior angle of the tracheal cicatrix a polypiform vegetation, incapable itself of giving rise to suffocation and death, but capable of exciting fatal spasm. M. Bergeron related a similar case; and in the course of the discussion which followed many remarkable cases were mentioned, indicating that small growths, at a distance from the vocal cords, are capable of exciting distressing and even fatal accesses of laryngeal spasm; and that sessile granulations, at the seat of a tracheal wound require careful attention before the cannula is withdrawn after tracheotomy.

JULLIEN ON AMPUTATION OF THE PENIS.—Dr. Jullien (Paris, Delahaye, 1873), discusses completely the history of the operation, and recommends that the section of the skin should be made at the same level as that of the corpora cavernosa, employing for the purpose the method of Desgrange 'who is always careful to place behind the line of intended section an enterotome, the branches of which embrace firmly the whole thickness of the organ.' He is strongly in favour of the actual cautery, which has given excellent results at Lyons, where the author practises. To avoid stricture, however, it is prudent to employ the V-shaped incisions (Ricord).

He objects to leaving a sound in the urethra, as being a source of injury to the passage and bladder. His mortality is one in 20.

OBSTETRICS AND GYNÆCOLOGY.

UNGARELLI ON A CASE OF CÆSAREAN SECTION. Dr. O. Ungarelli, of Minerbio (*Bullettino delle Scienze Mediche*, and *Gazetta delle Cliniche*, no. 48, 1873), relates a case in which he performed the Cæsarean operation, or gastro-hysterotomy, by what he describes as a new method, after having made an accurate diagnosis of the position of the fœtus. The patient was a woman, aged twenty-seven, with deformed spine and pelvis, who had been in labour forty-four hours when Dr. Ungarelli was called to her in consultation by Dr. Quercé, whose patient she was. He thus describes the operation.

In ordinary cases of labour, when it is necessary to perform versions besides examining the parts through which the fœtus has to pass, I always examine the uterus from the exterior, so as to find on what side the feet lie and to be able to introduce the hand in that direction; and in many cases I have found advantage from this, after having introduced the hand into the uterus. I determined to make an examination of the kind on this patient before proceeding to perform the Cæsarean operation, in the full confidence that, by making the incision where the feet are felt, it might be limited as much as possible. Preparations having been quickly made, and the patient placed on a miserable little bed, the only one which her dwelling offered, I made with a bistoury an incision 9 centimètres ($3\frac{1}{2}$ inches) in length over the left colic region, where the feet were felt, dividing in succession the skin and the muscles as far as the peritoneum. Two arterial twigs, branches of the epigastric, spouted blood, and were at once tied. I then divided the peritoneum on a director. A loop of intestine, partly covered by omentum, presented itself at the upper angle of the incision, and was replaced and held back by my assistant, so as to enable me to make an incision in the uterus of the same extent as that in the integument. All this was done as quickly as possible; and I had scarcely cut through the uterus when a foot escaped, and immediately afterwards another; they were both seized, and the entire child was withdrawn alive by my assistant, while my attention was directed to preventing the uterine fluids from escaping into the cavity of the abdomen. The placenta was easily removed. The wound in the abdominal wall was united by suture, and plaister and a compress were applied. The woman recovered. A. HENRY, M.D.

PUBLIC HEALTH.

HEALTH-LAWS AND THEIR ADMINISTRATION.

Since the passing of the Public Health Act of 1872, the appointment of a large staff of sanitary officers in all parts of the kingdom has given an impulse to the sanitary movement, and to preventive medicine a significance not secondary to that of the curative treatment of disease.

Medical practitioners are now called upon to per-

form new functions, demanding varied and extensive knowledge and experience yet immature. Old ideas of medical practice are undergoing a revolution, and changes not less welcome to practitioners themselves than beneficial to their patients are in progress of development.

Sanitary, social, and municipal policy affecting public health, are not yet sufficiently in the course of teaching in our medical schools, and the practical application of the sanitary laws is as yet too little known to many who are now called upon to administer them.

With the view of bringing Sanitary Science and Practice more prominently under the notice of the profession and the public generally, especially those interested in sanitary science, and now fulfilling high positions in connection with local sanitary boards, we purpose devoting special attention to matters affecting domestic and public health. The interest taken by the public and those of our readers engaged in official sanitary work, warrants the enterprise now proposed of making the *LONDON MEDICAL RECORD* a medium in which sanitary administration, sanitary education, sanitary appliances and inventions shall be an attractive feature, worthy of their study and attention. The information which in future will be found in this department of the *LONDON MEDICAL RECORD*, while it cannot fail to be conducive to the advancement of practical hygiene, will also furnish abundant material for that numerous circle of readers in the community at large, who watch with interest every effort to extend sound popular knowledge on all subjects closely affecting domestic welfare and happiness, and especially that which concerns the

'Mens sana in corpore sano.'

SANITARY EXHIBITIONS.

The International Exhibition of 1874.

Since the displays of 1851 and 1862 in the form of grand exhibitions, the tendency has been to collect objects of interest into smaller and more defined groups; and, in harmony with the spirit of the times, we find sanitary exhibitions taking a very prominent place.

At Leeds, in 1871, not the least important feature of the Social Science Congress was a sanitary exhibition, which, although got up in a hasty manner, succeeded beyond the most sanguine expectations of its promoters and exhibitors; and at Norwich, last autumn, the same experiment was a success, both as a financial and a social scheme.

Preparations are also making at Glasgow (we understand) for the renewal on a larger scale of a sanitary and domestic exhibition during the sittings of the Social Science Congress in that city.

Mr. Thomas Twining of Twickenham was, we believe, the first who started the idea; and, although his museum of sanitary and domestic economy with the whole of its valuable contents were destroyed by fire three years ago, and so lost to the public and its proprietor, there are signs of his labours still yielding good fruit by passing into other hands able to continue the work which he commenced.

The London International annual Exhibitions, conducted by the commissioners of the 1851 Exhibition, will this year open on Easter Monday; and among the classes 9 and 10, of manufacturing machines and processes, sanitary works will occupy the foremost rank.

The increasingly large circle interested in these displays of objects so closely concerning domestic comfort and personal health, and the eagerness with which persons examine anything under the head of sanitary appliances, is a manifest sign of a progress in the present generation, towards the taste for a study and cultivation of the hygienic laws and their practical applications.

We intend shortly, as the occasion offers, to consider these matters in the new light of modern science.

The International Exhibition, 1874, promises to attract a large share of interest from the medical profession as well as from the public, as may be predicted from articles exhibited under the head of civil engineering, architectural and building contrivances, sanitary apparatus and constructions, heating and warming by all kinds of fuel, and ventilating by all methods.

Sanitary officers, including now the large staff of medical officers of health, inspectors of nuisances, besides the chairmen and members of sanitary boards elected in all parts of the kingdom, called upon as they are to exercise sanitary functions, must of themselves form a large body of critical observers and anxious inquirers into these branches of sanitary industry, and become acquainted with modern improvements relating thereto. Every article exhibited in this department will be especially interesting to enable them to carry away that kind of information available in their official work. From them we hope to get valuable opinions regarding the class of disinfectants, and disinfecting processes, if exhibited as we trust they may be.

As we purpose in future pages of the *LONDON MEDICAL RECORD* to enter into full and special details of the various objects, processes, new inventions, and sanitary appliances about to be exhibited at the International of 1874, we will here only glance briefly at the character of the articles likely to call for a critical examination in a sanitary point of view.

Under the heading of sanitary architecture, we shall find model houses and cottages (and, as usual, the improved dwellings for the industrial classes, of which we hear so much, and make so little progress in providing), all kinds of building materials, stone, bricks, tiles, concrete, and cement; flooring and paving, ornamental and useful designs for buildings of large and small elevation.

In water-supply and drainage materials, the exhibition of 1874 will be particularly rich and complete. Every variety of manufacture in metal, porcelain and glazed earthenware tubing or pipes will be seen; several kinds of filters, water-waste preventers, taps and apparatus for the constant supply service (not yet understood in the metropolis) and in which great improvements and adaptability for household convenience will have to be made. In works of town drainage, scavenging and cleansing of streets, it is believed new suggestions (not before they are wanted in London) will be forthcoming for the collection and removal of excreta and refuse of towns. The dry earth conservancy system in many forms, along side of the best methods of civic purification, it is expected, will be well represented by practical methods by more than one exhibitor.

Companies recently established for carrying out sanitary works on a large scale will exhibit their methods; amongst other things, sewage purification by actual operation and demonstration, with

recent sewage, both by the wet and dry earth systems, by the charcoal filtration or otherwise, may be examined. Urinal and closet accommodations, and various other proposed methods of dealing with the excreta of towns and villages, will be seen. Diagrams, plans, sections, and models of sinks, traps, sewers, and ventilating apparatus will receive special notice, and have from us a minute examination. In future numbers of the RECORD it is proposed to point out the peculiar merits of each article or invention most worthy of attention; indeed, sanitary appliances for promoting domestic economy will be a distinguishing feature of one department of this journal, and if not extending, as we believe it will do, the domain of medical practice in the direction of preventive medical service, it will at least gratify us in complying with the request of a numerous class of readers devoted to the cultivation of sanitary science and to the promotion of the public health.

SANITARY INSPECTORS OF NORTH-AMPTONSHIRE.

The sanitary inspectors of this large area, being a combination of many rural and urban sanitary authorities, at the invitation of Mr. Haviland, the Medical Officer of Health, met recently at Northampton to express opinions and interchange experience. This was a wise course, and ought to be generally followed elsewhere. Such meetings of sanitary officers will be able occasionally to advise the governing bodies on many points in the Public Health Act of 1872, showing where it has failed and will fail to effect its purpose. They are well able to contribute to its amendment and final successes. Mr. Haviland told his inspectors that a great many old and absurd notions would have to be exploded, such as the following.

‘Many people on going into a village point out this man as eighty, and that man as seventy-five, or another who had lived to be one hundred years old. Long life was never yet a criterion of a healthy village. It was the life of the young people. Let them tell him the life of the young and show that they lived, and he would say whether their village was a healthy one. When once people got to a certain age they would live a long time. But it was the young they had to look to, the young in over-crowded houses with bad food and bad water were the objects of their special care. In our age there was a certain amount of vitality still left, whilst they were not overstrained and the excitement of life had passed; so that life went on if there was no particular accident or disease of an epidemic character to carry them off. The estimating the healthiness of a village or town by the length of life of some persons only was a perfect fallacy. Without having many deaths they might have much illness, as at Maidford, where not a single death occurred from typhoid, yet the death-rate is higher than Manchester or Liverpool.’

Mr. Haviland stated that his experience of sixteen sanitary inspectors did not lead him to wish to alter his relations with them, and as far as he was concerned his wishes were always carried out; and therefore under the circumstances, he did not desire any change. He wanted no further service than that which had hitherto been accorded, and accorded, he believed cheerfully. With regard to the water-supply, he suggested to the inspectors the advisability of studying geology and getting a practical acquaintance with the nature of the soil, nothing was more profit-

able, or more delightful for them whether they walked or drove on their rounds. This kind of experience associated as it was with drainage-works, would get them a position better than many testimonials. He cited an instance. An inspector, perfectly ignorant of his work, and disregarding levelling, ran up a bill for drainage of 600*l.* or 700*l.* by undertaking what he knew nothing about. He told the inspectors, very properly, that a knowledge of the geological formation of the soil and of well-sinking was of that practical kind which enabled them to judge of what was right to do and how to carry it out. They must make their office, for their office would not make them. This is very true, for a new class of men are springing up and being educated for their work, and it is a most excellent step in the right direction that they should combine themselves into associations like this and endeavour to co-operate with each other to promote their own interests, and that of the public health. Mr. Haviland deserves thanks for initiating this movement.

FOOD ADULTERATION AND ANALYSIS.—Dr. Hardwicke (*Third Quarterly Report of the Public Analyst for Paddington*) states that most of the articles analysed were, at the request of the Sanitary Committee, purchased by the inspector, and brought for analysis; there were also other articles given to him by persons in the parish and submitted officially for analysis.

Forty-two articles were examined during the quarter ending December 25.

Spirits.—In November and December, twenty-two samples of wines and spirituous liquors were procured by the inspector. Few only were of an inferior quality, and four were diluted before being sold to the retailer. The highest amount of alcohol was in the brandies and whiskies, the lowest in the gin and rum. The brown brandies were nearly all coloured with burnt sugar, and had distinct traces of molasses and cane-sugar. Amylic alcohol, or fusel oil, may be detected in some of the brandies and whiskies; but the samples submitted were not sufficient in quantity to make a separate estimation. It was probably a natural production of distillation, and not an adulteration; for according to Liebig, this substance is formed during the fermentation and distillation of saccharine liquids where gluten or any other nitrogenous substances are present. Where, however, the fermentation of saccharine matter is from pure grape-sugar, this impurity is not present to any great extent.

Vinegar.—Three samples of vinegar were diluted and wanting in the normal quantity of acetic acid; one had five per cent. which might be taken as the usual quantity. They were coloured with burnt sugar and contained common salt and sulphuric acid, in minute quantities. The common vinegars at 4*d.* per pint were made up with acetic acid of wood distillation. There were few samples of pure malt vinegar in the market.

Wines.—Officially, Dr. Hardwicke had had only five samples of wine, three of port, one of sherry, and one of marsala. The sherry contained sulphates of potash, alum, and lime, showing that in the process of manufacture the wine had been cleared by using gypsum or ‘Spanish clay’ (sulphate of lime). This form of adulteration is not injurious. The average alcoholic strength of the wines was fifteen per cent.

Ales.—Seven samples of ale examined varied in price—4*d.*, 6*d.*, and 8*d.* per quart. Those of the highest prices were clear and bright, showing no change or sediment after being kept corked up several days. The cheap ales had a sedimentary deposit, consisting chiefly of yeast-plant in a growing state, with other organic impurities in a state of fermentation. Dr. Hardwicke regards these as dangerous to drink, especially in epidemic seasons. The alcohol varied from 3·5 to 10 per cent.; the solid residues consisted of saccharine and bitter extractive matters, 3 to 10 per cent. 'There are strong reasons for believing that some ales are fortified by the addition of alcohol, in some manner, giving to them an unnatural intoxicating tendency.' He did not detect any dangerous adulteration, sulphate of iron, &c.

Bread.—Forty samples of bread sold in the parish were brought for analysis. Throughout the parish bread in most excellent quality is sold in the shops; but alum was occasionally found in bread, muffins, and crumpets, in such an amount as to preclude the possibility of its being there as a natural product. A minute quantity of alumina which, like silica and lime, comes from the soil, may exist in the ashes of the cereal plants. In the cases where Dr. Hardwicke has reported alum to have been used as an adulterant, it has been found as hydrate of alumina, in quantity exceeding half of a grain in 1,000 grains of moist bread, that is equal to fifteen to forty grains of alum in a 4 lb. loaf. 'The question of its injuriousness to health in small quantities, as well as of its necessity to enable inferior flour to be made into bread, is involved in obscurity; and, sooner or later, bread analysis will lead to a discussion in which public analysts, medical men, and even the bakers will have a good deal to say. I should not recommend the vestry to be the pioneers in expensive litigation before magistrates, but wait until the legal and sanitary aspect of the question has been a little more matured. I am prepared to enter fully into the matter, and to prove that alum exists in the cases I have reported; although there is reason to believe the practice has since been given up, not only in some of the best shops, but also in what are called the cheap bakers, or of "cutting shops" in the trade.'

Milk.—Six samples of milk were examined officially. The inspector procured them from street-hawking milkmen going round on Sundays and at night. They were much complained of, and the samples were most of them very bad. Four were recommended for prosecutions, having from twenty-five to forty-five per cent. of water in excess. The specific gravities of these inferior milks varied from 1,018 to 1,026, the normal standard being 1,032. The solid matters were as low as eight and nine per cent. instead of twelve and thirteen. The cream was also proportionately low. In the examination of other specimens during the past quarter, the milk distributed in the parish was of a fair quality; still it was below what the standard ought to be. What the average should be, has not yet been determined; and the dairymen have expressed a desire to hear what officers of health and public analysts have to say on the subject of a decided standard, so that milk-purveyors may only sell the best milk now the price is raised. There are no valid reasons why milk in perfect condition should not be sold at 5*d.* per quart. Milk ought not to show a lower specific gravity than 1,030 to 1,032, and the cream should

be not less than from eight to twelve per cent. (for it may vary considerably in the same cow at different times); the solids which show the nutritive value, should be not less than twelve or thirteen per cent.; anything below that, if occurring frequently, would indicate a want of proper attention to the feeding of the cows, or adulteration with water, or the creaming of new milk. The purveyors ought, to undertake the responsibility of testing the quality of milk supplied to the public, whether from 'country farms' or 'shed milk,' also of looking after the health and condition of cows; the latter duty is incumbent upon them, and will be the only guarantee for securing richness and purity of milk. It is also desirable that the dairies and places where milk is kept for sale previously to distribution, should be inspected by the health-officers of the district. Pumps and surface-wells of a dairy should be periodically examined, for typhoid epidemics have been attributed to the poisoned water of foul wells, used for washing the milk utensils.

Milk itself, like water, will readily absorb atmospheric poisons, and spread disease; therefore the emanations of a foul drain, untrapped sinks and closets, a damp unwholesome basement in a house, are very dangerous in proximity to milk exposed to them. I would refer to my paper for further details.*

Dairy reform will therefore consist in—1. Inspection of dairies, of the feeding of milch cows, and of the state of their health; 2. More speedy delivery to families of the pure new milk after milking; 3. The fixing of a standard guaranteed quality of new milk, by testing and analysis.

THE ADULTERATION OF BUTTER.—At a meeting of the Society of Medical Officers of Health, held at the Scottish Corporation Hall, under the presidency of Dr. Hardwicke, a paper was read by Dr. C. Meymott Tidy upon 'Butter and its Adulterations.' Dr. Tidy said that butter was generally prepared from cream collected from time to time and allowed to become slightly sour. It was then churned. The best temperature for churning was from fifty to fifty-five degrees Fahrenheit, and hence most churns had an outside vessel either to warm or cool the apparatus. Churning should not be too slow, or the flavour of the butter would be entirely destroyed, nor too fast, or the butter would be soft and frothy. Butter was also made from fresh cream and from entire milk. This should stand until it was sour, and then be churned at a temperature of sixty degrees. More butter was obtained from entire milk than from cream, but there was more work in the churning. Milk on an average yielded from 4·5 to 5·5 per cent. of butter; a cow yielded about one pound of butter daily. It was next taken out of the churn and washed with water, to remove the whey, as the butter would otherwise decompose more rapidly. It was then salted, about four per cent. of salt being a fair quantity to be added. The amount of stearine, oleine, and palmitine in butter was practically *nil*. The first adulteration of butter was water. By drying 100 grains of pure butter in a weighed capsule for several hours at 220 degrees Fahr., from five to eight per cent. of water would be produced. Water was incorporated with the butter chiefly when it was semi-solid, and also by beating out and sprinkling. Of 130 samples of butter purchased at different shops in Kent, seven contained from seven to nine per cent of water, twenty-one from nine to ten per cent., thirty-four from ten to thirteen per cent., forty-two from

* 'On the recent Outbreak of Typhoid in Marylebone,' by W. Hardwicke, M.D., in the *Social Science Transactions, Norwich Congress, 1873.*

fourteen to seventeen per cent., seventeen from eighteen to twenty-four per cent., and nine over twenty-five per cent. It was his custom, in official analysis, to state the amount of water over ten per cent. The next adulteration was salt. To trace this the remainder of the 100 grains used for drying is incinerated. In twelve specimens of undoubtedly pure butter, the average amount of salt traceable was 5.2 per cent., and of twenty-seven samples of butter indiscriminately purchased, he found that two contained less than three per cent. of salt, two between three and four per cent., three between four and five per cent., four between five and six per cent., ten between six and seven per cent., two between seven and eight per cent., one between eight and nine per cent., two ten per cent., and one seventeen per cent. Over seven per cent of salt he considered excessive. Adulteration was also produced by the addition of dripping, lard, suet, and other fats. These could only be mixed with butter when they were cold, and hence the mixture was never perfect. The fats, unlike real butter, contained stearine, palmitine, &c., in considerable amount. The presence of these fats was denoted by the melting and solidifying points. Butter melted upon an average at seventy-five degrees, and solidified at sixty-three; dripping melted at 79.5, and solidified at 72.5; and suet melted at eighty-two, and solidified at seventy-five. The taste of real butter could be detected, even when it had been most extensively mixed. Pure butter melted quickly on the tongue, and there was no sense of granulation; but when adulterated with other fats it melted far more slowly, and a peculiar granulated feeling in the mouth was produced as the last few grains disappeared. The odours of butter and of dripping were easily distinguishable, but the smell of lard when mixed with butter was not so soon detected. Good butter was generally of a rich yellow colour, entirely uniform; but when adulterated the colour was very much paler, and it was marbled, owing to the imperfect admixture of other fats. He regarded streaky butter generally with suspicion. In good butter an uniform surface was produced by passing a clean knife rapidly over it, but impure butter had a granular appearance. Dr. Tidy concluded by describing other more technical ways of detecting bad butter, such as the action of ether and the use of the microscope with polarised light. The Society passed a cordial vote of thanks to Dr. Tidy for his interesting remarks. A short discussion ensued, in which Dr. Stevens, Dr. Bernays, and Dr. Tripe joined. Dr. Bernays observed that from five to six per cent. of water undoubtedly improved butter, and the addition of more than seven per cent of salt would render it uneatable. When in butter of 1s. per pound he found no less than 22½ per cent. of salt and water, he could not think it cheap.

ADULTERATION OF FOOD ACT—PROSECUTIONS.—At the Southwark Police Court, Sarah Duckett, of Albert Street, Bermondsey, was summoned at the instance of Mr. Dorman, an officer of the Bermondsey Vestry, for selling milk adulterated with 40 per cent. of water. The defendant said she sometimes obliged a neighbour with a small quantity of milk which she had diluted, but she was not in the habit of selling it. On the day in question the man brought a bottle and asked her for a pennyworth, and she served him with it. Mr. Dorman said he had seen people come out of the house with milk, and on one occasion he tested it. Finding it was very much diluted he took the present proceedings. Mr. Benson fined her 10s. and 17. 13s. costs, and told her if she came again she would be liable to a penalty of 20s.

At the Tonbridge Petty Sessions, a person named Featherstone was charged with selling bread adulterated with alum. The inspector produced a certificate from Dr. Tidy, stating that in the sample 2 lb. loaf left with him there were 14.8 grains of alum. The man who always made the defendant's bread was called. He deposed that no alum was ever used by defendant, who was a contractor under Government for supplying the Royal Engineers in

the town. The same bread was served out to them as to the general public. The second officer in command said the defendant's bread was tested from time to time, by the War Office chemist at Woolwich, but no trace of adulteration had ever been found. Mr. Warner asked that the case should be adjourned to enable him to have an independent test. The Bench refused, saying they were willing that Dr. Tidy should re-analyse the half loaf produced in Court. The defendant could not see that it was at all likely Dr. Tidy would alter his opinion. The Bench fined him 10s. and costs.

At the Greenwich Police Court, Mr. Martin, baker, of Mason Street, New Cross, appeared to an adjourned summons for selling bread adulterated with alum. There had been two analyses. The first, made by the local analyst, showed that there were 45 grains of alum to the 4 lb. loaf. The second analysis was by Dr. Stevenson, who certified that he could not find any alum. Mr. Patteson dismissed the summons, and ordered the Greenwich District Board of Works to pay five guineas, the cost of the second analysis.—Mr. Pook, who had been engaged in other cases in which convictions had taken place, but the fines had been postponed, asked that the summonses might also be dismissed, on the ground that such convictions had taken place on the evidence of the local analyst.—Mr. Patteson said that an error in one analysis was to be taken as an error in the others, and these summonses, as also two others not gone into, were dismissed, with the same conditions as to allowance of costs.

ADULTERATION OF FOOD ACT—PENALTIES.—Representatives of several of the metropolitan district boards and vestries are combining to urge the Government to introduce a clause in the bill to be brought forward to amend the Adulteration of Food, &c., Act, 1872, so as to provide that penalties recovered from persons for adulteration shall go in aid of the expenses of the vestry or district board by whom the proceedings were instituted.

PLOMESGATE UNION—MEDICAL OFFICER OF HEALTH.—The Plomesgate Union Rural Sanitary Authority have declined to appoint a medical officer of health pursuant to the Public Health Act, 1872. The Local Government Board, under these circumstances, have stated that the Board will feel bound to take such legal measures as may be necessary for compelling the authority to appoint such an officer.

SANITARY WORK IN THE HOLBORN DISTRICT.—From the annual report of Dr. Septimus Gibbon, the medical officer of health for the Holborn district, for 1873, it appears that during the year the Artisans' and Labourers' Dwellings Act has been applied to twelve houses, with the result of demolishing four and making eight fit for habitation. In all 1,438 places had been inspected and reported upon—slaughter-houses, cow-yards, and bake-houses visited; 359 sanitary improvements had been required to be done at the hands of owners and the requisitions complied with; 150 houses had been repaired, cleansed, and limewhitened; cesspools had been emptied, twenty-four houses supplied with water for domestic purposes, 103 rooms disinfected after infectious diseases, nineteen illegal underground rooms had been closed, fifteen houses had had their over-crowding diminished, twenty-five houses had had their ventilation improved, and a mass of other work had been done in regard to trapping drains, repaving yards, placing water to closets, cowsheds cleansed and removed, providing, covering, or repairing water receptacles, and the like, which it would be thought the people in their own interest would require without the intervention of an officer. Besides these duties, articles exposed for sale had been seized and destroyed as unfit for human food, and various trade nuisances had been abated.

LONDON HOUSES.—Dr. Corner, medical officer of the hamlet of Mile-end Old Town, reporting on the condition of the dwellings of the poor in the district under his charge, says the relation between houses and the health of

their occupants is admittedly intimate. Nevertheless, houses still continue to be, and are allowed to be, erected with entire disregard to sanitary views. The foundations are unprepared, the ground being well impregnated with the materials for malarious emanations. The superstructure is deposited, or, more technically, 'run up,' and, if guided by any principles at all, they are those most antagonistic to the health and comfort of the future occupants. This applies not only to the dwellings of the poorer classes, but also to those of a more pretentious character. Then the materials are often of a nature and quality which may, in various ways, endanger the health of the occupants. The contents of dustbins are mostly used in the manufacture of bricks, &c. If these contents were composed of ashes only no danger need be feared, but it is a question whether the baking process always destroys any deleterious ingredients. Again, old materials from fever-dens may with impunity be used in the erection of new houses, and thus insure an early outbreak of fever. All these evils are allowed without any attempt at prevention or supervision. No advance has been made in improving the internal structure of moderate-sized houses. There are still the same dark and awkward passages and stairs, smoky chimneys, doors in wrong places, and rheumatic ventilation—in short, everything antithetical to health and comfort.

MISCELLANY.

HIGHER EDUCATION OF WOMEN.—At the University of Bern (Switzerland) the courses of the Faculty of Medicine are at the present time followed by twenty-five ladies as students, among whom are twenty-two Russian ladies, whom the last ukase of the Russian Government forced to quit Zurich, and who have transferred their residence to Bern, in order to continue their studies there. This circumstance has induced the rector of the university to take as the theme of his discourse on the anniversary celebration of the foundation of the University, the higher education of women, and to express his conviction that such instruction is right and necessary. He added that the experience of that University had thus far been altogether favourable. The declaration of the Professors of the University of Zurich, from which the Russian ladies were driven by the Government ukase, is also highly favourable to the ladies; they have denounced the statements in that ukase as altogether unfounded and calumnious, and made solely for political purposes.

A FRENCH VIEW OF MEDICAL PROGRESS IN 1873.—M. P. Garnier writes:—Although the medical year of 1873 has failed to bring forth one of those proud discoveries which make an era—such as that of the circulation of the blood, auscultation, anaesthesia—yet it has not been barren in original views, in important applications, and in researches and work of every kind. Without pretending to estimate from afar the power and value of the scientific movement in foreign countries by the feeble echoes that reach us through their journals, it is certain that France is still the mistress in clinical and therapeutical medicine, which are the essential bases of the art. An analysis of the work of the year proves this.

The pathogeny and etiology of albuminous expectoration which occurs after thoracocentesis, was brought before the Société Médicale des Hôpitaux de Paris. This is a true clinical discovery. Similar accidents observed in Brazil after paracentesis may be compared with it. Another discovery is that of areolar pleurisy, by M. Moutard-Martin. A yellowish gelatinous matter, containing numerous lymphoid cells, found in the peritoneum at the necropsy of a woman, consecutive to a pretended spontaneous rupture of an ovarian cyst, made us compare these facts with the gelatinous disease of the peritoneum, described by M. Péan, in 1871. This new affection of the serous membranes calls for special attention.

The extension of the trophoneurotic etiology to perforating disease of the foot, to sclerema, scleroderma, certain ulcers, to pulmonary apoplexy of the paralysed side, and to many other affections of the muscles, of the articulations, and even of the bones, is so far a French clinical conquest, that we claim it for her.

We may also cite the ambulatory or apyretic form of typhoid fever, pointed out by M. Vallin, in opposition to that absolute law of the Germans, that every disease which, by the evening of the fourth day has not reached 103° Fahr. is not typhoid fever; hysterical anorexia, uræmic encephalopathy of the newly born, bronchial adenopathy, peritonitis, and rheumatismal pleurisy, tracheocele, myelic neuroma, &c. If we compare the reality and clinical value of these new, indigenous, pathological entities with the agoraphobia and rôtheln of the Germans, the anæmic form of fatty heart in young subjects, dysidrosis, gouty iritis, cellulitis of the neck, tetaniform pseudo-paraplegia, neurotic phthisis of foreign origin, it is easily seen that certainty and precision of diagnosis are in our favour. Even chloralium, the paralysis of which had been particularly observed in England in the highest degree, has gained in clearness and precision by the pen of Professor Gubler. We note also the convulsions of sucklings, caused by the alcoholism of their nurses, and epileptiform convulsions, caused by ammoniacal injections, as well as the fresh confirmations of provoked epilepsy. These are clinical observations of far greater importance than the new interpretations of hypertrophic lichen, traumatic herpes, azoturia, anadrosis, diphtheritic buboes, and other vagaries of the imagination and language, which encumber and embarrass science more than they enrich her.

Besides these nosological novelties, no less important therapeutical innovations have been introduced on every side. The hæmostatic method of Esmarch, sprung directly from the elastic suture used in France, England, and Italy for many years, and recently revived in Vienna, promises to render the greatest services to surgery by the various applications that have already been made of it here and there. The prevention of hæmorrhage and even of all loss of blood is so important in operations, that the new process of enucleation of large tumours used by M. Letiévart for the same end equally merits to be noticed. Aspiration comes next, and the extension of its employment to dilatation of the stomach is a fresh proof in favour of its generalisation.

The lengthening of the bone by the irritation of the periosteum is another method which, supported by evident facts, will before long become part of the current practice of surgery.

New medicines have not failed to be brought forward as in preceding years, such as propylamine, trimethylamine, chloralum, and ditaine, none of which have taken hold amongst us. Important observations have been made on current medicines. Chloral has been shown to be antiputrescent in its action by combining with albuminoid matters; hence, its success against phagedæna, eschars, gangrenous wounds, &c. These new properties and its valuable hypnotic action in calming tetaniform and abortive contractions of the uterus, or its painful and irritating contractions during delivery, will considerably increase the use of this agent. The hopes founded on the use of sulphate of quinine as an obstetric agent have, on the contrary, failed; in spite of its evident experimental action on bitches, Professor Chiara has shown that it possesses no positive exciting action on the uterine fibre of the woman. There is, therefore, no danger in administering it as an antiperiodic during pregnancy. This is a new proof that what is true of animals is not always true of man, and *vice versâ*.

The experiments of M. Davaine and others on septicæmia have shown that inoculations which succeed in the rabbit and the guinea-pig are entirely unsuccessful in the larger animals. M. Davaine's conclusion that bacteria form the *corpus delicti* in the transmission, although in hypothetical conformity with the panspermist doctrine of M.

Pasteur is entirely contradicted by the experiments of M. Onimus and M. Colin.

The experiments on the transmission of tuberculosis by the alimentary canal have equally failed to show that animals can in this way transmit their diseases to man.

PROFESSOR ROKITANSKY'S SEVENTIETH BIRTHDAY was celebrated in Vienna on Thursday, the 19th instant, with great *éclat*. The proceedings of the day were commenced with the investiture of Professor Rokitansky, by the Emperor, with the Cross of Commander of the Order of Leopold. At 11 A.M. a public meeting was held in the Academy of Sciences, where an address was delivered by Councillor Langer, professor of human anatomy in the University; after which a bust of Rokitansky was unveiled, and the *Gesängsverein* of the academy then sang an appropriate chorus. Congratulations were then presented to Rokitansky, by deputations from learned bodies, in the following order:—1. The Imperial Academy of Sciences (of which Rokitansky is president); the deputation was headed by the vice-president Ritter von Arneht, and presented an album containing photographs of members of the Academy; 2. The University of Vienna; the deputation was headed by the Rector Magnificus, Professor Vahlen; 3. Burgomaster Felder, on the part of the Municipal Council of Vienna, with the freedom of the city; 4. The Rector of the University of Prague, with the honorary diploma of doctor, and the representatives of the remaining Austro-Hungarian universities in the order of their foundation, viz. Cracow, Pesth, Gratz, Innsbruck, and Klausenburg; 5. The Students of the High Schools of Vienna; 6. The Municipal Council of Gratz, in Styria, with the freedom of the city; 7. The Medical Practitioners in Vienna, headed by their Dean, Councillor Dr. Helm; 8. The Medical Officers of the Army, headed by General Staff-Surgeon Dr. John von Hassinger, with an address; 9. The Supreme Sanitary Council; 10. The Sanitary Council of Lower Austria; 11. The Sanitary Councils of Hungary and Moravia; 12. The Berlin Medical Association; 13. The medical practitioners of Baja, in Hungary; 14. The hospitals, represented by Dr. Hoffmann; 15. The Pathological Society of London, with a diploma; 16. The Imperial Academy of Constantinople; 17. The Medical Association of Vienna; 18. The Psychiatric Association of Vienna; 19. The Imperial and Royal Medical Society of Vienna. At 6 P.M., a banquet took place, at which about 240 guests were present, including the wives of Professor Rokitansky and of his sons. The chair was taken by Prince Joseph Colloredo Mansfeld. Several members of the Austrian Ministry and other public functionaries were present. At 9 o'clock there was a torch-light procession of students, with music.

THE CHOLERA AT MUNICH.—Recent advices from Munich announce that the intensity of the cholera epidemic increases daily in that unfortunate city. The well-to-do population have taken flight in all directions, carrying with them the germs of the disease; and those who are left behind are decimated. The terrified population hardly leave the churches, nothing but bells are heard, and nothing but processions are seen. It is needless to add that business is almost at a stand-still, and that the distress is extreme. During the last week there were 55 cases, of which 25 were fatal. The total number of cases since the reappearance of cholera (Nov. 15), is 2,788 cases, with 1,303 deaths.

SIMILARITY IN TWINS.—Dr. J. F. Bird writes that he has invariably found that when twins are contained in the same sac, and are sustained by the same placenta, they have always had a remarkable resemblance to each other; whilst those contained in different sacs, and sustained by different placentae, are as unlike as children born of the same parents at different periods. His hypothesis is sustained, not only by repeated personal observation, but also by inquiries made of other observers.—*New York Medical Record*, Jan. 15, 1874.

LIST of Naval Medical Candidates who were successful in the Competitive Examinations held in London in August, 1873, and at Netley in February, 1874, after having passed through a course at the Army Medical School at Netley, and who will receive Commissions as Surgeons in the Royal Navy.—

| Order of Merit. | Names. | Number of Marks Max. 6,900. | Order of Merit. | Names. | Number of Marks Max. 6,900. |
|-----------------|------------------|-----------------------------|-----------------|--------------|-----------------------------|
| 1 | Hewett, F. C. C. | 4,317 | 4 | Cooke, G. | 3,609 |
| 2 | Preston T. J. | 4,173 | 5 | Pearson, W. | 3,554 |
| 3 | Bedford, R. | 3,881 | 6 | Vasey, C. L. | 3,140 |

THE NEW MEDICAL BARONET.—Dr. BURROWS, on whom the honour of a baronetcy has been conferred by the Queen at the instance of the outgoing Ministry, has long been designated by the voice of the profession for that distinction. Dr. Burrows graduated as M.D. of Cambridge in 1831, and was a Fellow of Caius College. He was for many years physician to St. Bartholomew's Hospital, of which he is now consulting physician. He has held in succession all the most honourable posts in the profession which are within the reach of a physician; having been President of the General Medical Council, President of the British Medical Association, President of the Royal Medical and Chirurgical Society, and being now President of the Royal College of Physicians. Dr. Burrows is still hearty and vigorous, and his selection for a baronetcy has given general pleasure in the profession, for his life has been blameless, laborious, and useful.

MUSTARD PLASTERS.—It is stated that in making a mustard plaster, no water whatever should be used, but the mustard mixed with the white of an egg; the result will be a plaster which will 'draw' perfectly, but will not produce a blister even upon the skin of an infant, no matter how long it is allowed to remain upon the part.

PROFESSOR KÖLLIKER, of Würzburg, has received an invitation to a professorship in the University of Bonn.

THE Emperor of Austria has conferred the Gold Cross, with the crown, on Dr. Ferdinand Gallasch of Ebensee, in recognition of his long and valuable service as a practitioner of medicine.

NOTICE.

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The London Medical Record.

WEDNESDAY, MARCH 4, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

SANDS ON HÆMORRHAGE FROM THE INTERNAL CAROTID ARTERY SUCCESSFULLY TREATED BY LIGATURE.*

Having occasion to disarticulate the left half of the lower jaw for scirrhus, situated chiefly on the inner aspect of the ramus and body of the bone near the angle, Dr. H. B. Sands, of New York, met with copious arterial hæmorrhage. The hæmorrhage being temporarily checked by pressure with the finger, an inch of the external carotid artery and portions of equal length of the digastric muscle and the hypoglossal nerve were observed running through the tumour, and Dr. Sands thus describes the further proceeding.

These parts were necessarily divided and removed, together with the tumour. The external carotid, together with some smaller arterial vessels, having been tied, I was about to close the wound, when free venous bleeding took place from a small opening that I had accidentally made in the internal jugular vein. After some reflection as to the best course to pursue, I seized the margins of the wound in the vein and applied a lateral ligature, not occluding the calibre of the vessel. The wound was then closed by sutures, except at its middle part, where an opening half an inch long was left for the exit of the ligatures. During the operation, it was noticed that the upper part of the common carotid and the internal carotid artery from its origin to the base of the skull were exposed, and could be seen pulsating at the bottom of the wound.

On the tenth day after the operation, at ten o'clock in the evening, while my partner, Dr. Curtis, was engaged in cleaning the wound, a sudden escape of blood took place both from the external opening and through the mouth. Dr. Curtis at once compressed the common carotid with the left hand, and, ripping open the upper end of the original incision, passed in two fingers of the right hand and made pressure over the line of the internal carotid. The hæmorrhage ceased at once, about two ounces of blood having been lost, whose colour gave no certain indication of the source of the bleeding. Pressure was successfully maintained until my arrival, at the end of about half an hour. It was then found that one of the upper two fingers covered the bleeding point, which was evidently above the carotid bifurcation, and Dr. Curtis was relieved by my pupil, Mr. Shafer. The ligatures were then examined, and that on the internal jugular vein was identified and found to be attached far below the bleeding point. No ligature

could be identified as belonging to the external carotid artery. After looking at the ligatures, I, without giving ether, prolonged the opening in the neck downward along the anterior edge of the sternomastoid muscle, and endeavoured to reach the common carotid high up. Owing to the altered condition of the parts, this proved impracticable; so, having divided the omo-hyoid muscle, I exposed the artery just below it, where the tissues were normal, and passed, without tightening it, a ligature. The common carotid was then compressed between the ligature and the finger, and pressure relaxed upon the bleeding-point. A very vigorous spurt of blood followed, and pressure was resumed.

An examination of the surface immediately above the seat of hæmorrhage revealed a very soft pulsation just beneath the granulations along the line of the internal carotid. The latter vessel I directed Dr. Curtis to dissect while I controlled the bleeding. The internal carotid was exposed by scratching through the condensed tissues with the point of a grooved steel director; a ligature was passed and was immediately tightened, as was just afterward the one encircling the common carotid. I then lifted my finger from the bleeding-point, and no gush followed, but a bleeding continuous in character, and small in amount. This was easily controlled by pressure just below the opening, and for the first time the exact seat and nature of the latter were completely open to inspection. The blood was found to come from a small, circular, clean-cut ulceration in the side of the internal carotid artery, situated an inch below the upper ligature and the same distance above the upper border of the thyroid cartilage. Through this opening, the white and glistening surface of the inner coat of the opposite side of the arterial wall was distinctly visible. After ascertaining the opening to be in the side of the internal carotid, I readily exposed this vessel two or three lines below the opening, and applied a ligature, thus cutting off the source of the trifling hæmorrhage which had persisted after the tightening of the first two ligatures. This hæmorrhage must have been caused by the recurrent circulation through branches springing from the stump of the external carotid. The lower portion of the wound was then closed by a few silk sutures, and the rest lightly filled with dry lint.

The operation, which lasted about two hours, was wonderfully well borne, the patient making no complaint. He lost altogether, both during the operation and the antecedent hæmorrhage, not more than four or five ounces of blood, and the pulse continued firm throughout. Milk and iced brandy were administered through the night, and the patient obtained sleep without anodynes.

The two ligatures on the internal carotid separated on the ninth day, that of the common carotid on the fourteenth day, and that of the internal jugular vein on the seventeenth day after their application. The upper ligature on the internal carotid had in its noose an offensive white slough of the artery three-eighths of an inch long, and another hæmorrhage was feared. None occurred, however, and the patient recovered completely without any further unpleasant symptoms.

Lesions of the internal carotid are usually so rapidly fatal that no opportunity is afforded for surgical treatment. But even when the surgeon interferes success is not generally attainable, and, so far as I have been able to ascertain, there is only one

* *New York Medical Journal.*

other example of recovery recorded besides the one herewith reported. This case occurred in 1807, in the practice of Dr. Twitchell, of Keene, New Hampshire, and in many respects it resembled my own. The hæmorrhage was secondary, and took place ten days after a gun-shot injury, while Dr. Twitchell was in the patient's house. He applied a ligature on the cardiac side of the opening in the wall of the internal carotid, but was obliged to check the recurrent hæmorrhage by means of a graduated compress, as the opening was in that part of the artery which lies just beneath the base of the skull.

From various sources I have collected the following instances of hæmorrhage from the internal carotid. Some were treated and others were not, while all terminated fatally.

1. A hunter received a penetrating bullet-wound of the face. Hæmorrhage occurred on the third day, after the administration of an emetic. Death took place on the fourth day, during an attempt to tie the common carotid. At the necropsy the ball was found lying behind this vessel, opposite the bifurcation. The internal carotid showed a longitudinal rent one-fourth of an inch in length.

2. Abernethy tied the common carotid for hæmorrhage from a wound in the neck inflicted by a cow's horn. The patient died thirty hours after the operation, with symptoms of hemiplegia. At the *post mortem* operation the facial, lingual, superior thyroid, and internal carotid arteries were found torn.

3. Langenbeck tied the common carotid for hæmorrhage from the internal carotid, caused by the ulceration of an epithelial cancer. Death occurred soon after the operation, and an ulcer not larger than the head of a pin was found in the coats of the internal carotid.

4. A. Smith ligated the common carotid for hæmorrhage from the internal carotid, caused by a phagedænic ulcer of the tonsil. The patient died in six hours.

5. In the *Medical and Surgical History of the War of the Rebellion* a case is reported in which the common carotid was tied for hæmorrhage from the internal carotid, caused by a gun-shot wound. The hæmorrhage recurred and carried off the patient.

6. Baizeau tied the common carotid for hæmorrhage from the internal carotid, caused by disease of the ear. The bleeding was not arrested, and proved fatal on the third day. At the necropsy an opening was found in the internal carotid, produced by caries of the walls of the tympanum.

7. Broca performed an operation like the one last described, and with a fatal result, due to hæmorrhage.

8. Billroth, in a case of hæmorrhage from the right ear, due to ulceration of the internal carotid, tied the right common carotid, and a fortnight subsequently the left common carotid. Death from hæmorrhage occurred two days after the last operation.

9. Dupuytren reports the case of a man who received a perforating bullet-wound of the neck at the level of the inferior maxilla. Hæmorrhage, which pressure failed to arrest, occurred on the tenth day, and proved fatal on the twelfth day. At the necropsy, a wound one half an inch in length was discovered in the internal carotid, two inches above its point of origin.

10. Heyfelder relates that a soldier received a penetrating wound on the left side of the neck, and died of hæmorrhage eight hours after the injury. Ice-bags were the only means employed to check

the bleeding. The internal carotid was found to be almost completely divided three and a half lines above its origin.

11. Bécлар states that a travelling charlatan wounded the internal carotid while attempting to excise an enlarged tonsil. The operator fled, and Bécлар was summoned just in time to see the patient die from hæmorrhage. A wound of the internal carotid was found *post mortem*.

In some of the cases above mentioned—namely, those in which the hæmorrhage was due to disease of the petrous bone—the application of a ligature on the distal side of the arterial lesion was impossible; and the case that I have reported is the only one so far as I am aware, in which a lesion of the internal carotid has been treated by the application of a double ligature to the injured vessel, one on the proximal and the other on the distal side of the bleeding-point. The result affords additional evidence of the soundness of the rule laid down by Mr. Guthrie; a rule which is too often neglected, as is shown by the surgical reports of the late civil war, even at the present day. It is not perhaps difficult to explain why a surgical maxim so generally admitted to be binding should be so often disregarded. The application of a double ligature to the bleeding vessel is simple in principle, but generally difficult and sometimes impossible in practice. The deep situation of the bleeding vessel, its relation to other important parts, and, in cases of secondary hæmorrhage, the infiltration of the surrounding textures with inflammatory products, offer serious and sometimes insuperable obstacles to the application of a double ligature near the opening in the arterial walls. In these circumstances the temptation to apply a simple ligature to the main trunk is very great; and experience shows that this operation, either alone, or, as in Dr. Twitchell's case, in conjunction with pressure, may sometimes insure the desired result. Yet success in such an operation can never be expected, and the surgeon should in no case perform it except as a last resort, and after an attempt has been fairly made to apply a double ligature according to the rule admitted by nearly every surgical writer as imperative. In the present case, it is plainly evident, that unless the ligature had been applied above as well as below the bleeding-point, death from hæmorrhage would have rapidly and inevitably followed, as it was noticed that the simple interruption of the circulation through the common carotid produced no appreciable diminution in the violence of the bleeding, which, however, ceased almost entirely when a ligature was applied to the internal carotid beneath the base of the skull. The slight recurrent hæmorrhage still going on was controlled by the third ligature, placed just below the bleeding-point. This ligature I should have applied at first, instead of tying the primitive carotid, had the state of the parts rendered the requisite dissection practicable.

Finally, it may be interesting to note the success which attended the application of a lateral ligature to the internal jugular vein. In spite of the weight of authority in favour of treating wounds of large veins by the use of a double ligature, completely surrounding the vein above and below the bleeding-point, I am strongly inclined, if the wound be small, to trust to a single ligature, applied laterally, so as to include merely the edges of the wound, and not to interrupt the current of blood through the injured vessel. In case the wounds were of large size I

should then regard the complete ligature of the vein as affording the best guarantee of success.

LANKESTER ON THE MANAGEMENT OF INFANTS.

The following 'Plain Rules for the Management of Infants' has been drawn up by Dr. E. Lankester, F.R.S., Medical Officer of Health for St. James's, Westminster, and was issued in the form of a pamphlet by order of the vestry. Instruction has been given for presenting copies to persons registering the birth of children; and copies of the pamphlet may be obtained, for the purposes of distribution, by any parishioner, at the St. James's Vestry Hall, Piccadilly.

Cleanliness.—One of the first things necessary for the health of a child is that it should be kept clean. For this purpose healthy infants should be put into warm water night and morning, care being taken to avoid the extremes of heat and cold. After bathing the body should be cleansed from head to foot with a sponge or flannel with a little soap. The body should then be dried with a warm soft towel. The heat of the water may be gradually lowered as the child grows older. Washing in cold water is not desirable, except in summer, for young children.

The Dress of Children.—Children should be clothed in such a way as not to interfere with the free play of their limbs. They should be clothed warmer in the winter than in the summer, and the common deadly practice of allowing their arms and legs to go bare should be avoided. Every part of the body should be warmly clad, except the head. Woollen clothing is best for the winter, and linen and cotton for the summer.

Fresh Air.—One of the great necessities of life is fresh air. Children should always be placed in bed where fresh air can come to them. It is calculated that three thousand children are suffocated in bed every year in the United Kingdom by the ignorance of their mothers of the necessity of fresh air. Mothers should not fall asleep whilst their children are sucking at the breast, nor should infants be allowed to sleep in bed with their parents. A crib or bassinet is the safest place for a child whilst its parents are in bed and asleep. Children die most in overcrowded rooms. A room should contain 500 cubic feet of air for every man, and woman, and child living in it. In fine weather an infant should be taken out at least twice a day, winter and summer. In winter it should be warmly clothed, and in summer it can hardly be out in the open air too much, except when it is sleeping.

Sleep.—Sleep is very necessary to young infants. They should be laid to sleep at regular intervals, away from light and noise, and not awakened unnecessarily. It is better that children should sleep in a cot than in their mother's or nurse's arms, and in no case should they be rocked to sleep in a cradle. No kind of cordial, spirits, syrups, sleeping drops, or other remedies should be given by the mother or nurse, to make the child sleep. If the child is sleepless it is ill, and medical advice should be obtained.

Food.—One of the most frequent causes of the early death of young children is improper feeding. The proper food of children is breast-milk. When the mother and child are both healthy, no other food is required for the first six months. When the child is first born no other food is required, and the prac-

tice of giving gruel, butter, honey, and castor-oil to new-born babes, is pernicious and destructive to their health. When the mother has a deficiency of milk, cow's milk is the best substitute. It should be given with a third of warm water and a little sugar. For the first six weeks the child should be suckled every two hours in the day and every three or four hours at night. Gradually as it gets older the intervals of feeding may be prolonged. Children should not be fed to keep them quiet, but at regular intervals. Mothers should never fall asleep when suckling their babes. This is one of the most frequent causes of suffocation in bed.

Nursing.—A mother whilst nursing ought to live generously and well, but not carelessly or grossly. She may take porter or ale, but certainly not more than a pint of either a day. On no account should any kind of spirits be taken. When nursing, a mother suffers from giddiness, palpitations, shortness of breath, or night sweats, she should consult a medical man as to the propriety of weaning the child. Before the child is six months old, if the mother is weak, it may be fed on cow's milk alternately with its mother's milk. This is better than bringing the child up by hand alone.

Weaning.—A child should not be weaned suddenly, but by degrees, and ought not to have the breast after the ninth month. When the child has cut its front teeth it may have some light food, such as bread, baked flour, or milk biscuits added to its milk, or it may have 'Liebig's Infant Food,' which is sold in the shops. It may also have, once a day, meat-broth, or beef-tea, with bread or biscuits soaked in it; or it may have the yolk of an egg, lightly boiled. When it is a year and a half old it may have some fine chopped meat, but milk should form the principal part of its food. Such food as solid meat and potatoes, fat pork and fish, which form the food of grown-up people, should on no account be given to children.

Hand Feeding.—When it is impossible for a mother to give milk to her child, or to procure a wet nurse, the child must be fed by hand. In this case it should be remembered that *milk*, and *milk* only, should be used for feeding the child. Cow's milk, diluted with one-third water, and sweetened with a little sugar, is the best form. The milk thus prepared should be given from a feeding-bottle, which should be emptied after every meal, and thoroughly cleansed with hot water, and the cork and teats kept in water when not in use. When the bottle smells sour, it ought not to be used. The child should be fed regularly with its bottle, and by no means to have it merely to keep it quiet.

Most of the deaths from hand feeding, under six months old, arise from the use of *corn-flour*, *arrow-root*, *baked flour*, and *other kinds of starchy food*, which contain no nutritious qualities, and can never be used as substitutes for milk without endangering the lives of the children who are stuffed with them. When milk cannot be obtained pure, or is open to the suspicion of adulteration with water, then what is known as 'Condensed Milk' may be used with advantage.

PROFESSOR KÖLLIKER has declined the invitation to a chair in the University of Bonn, which was lately offered to him.

DURING the last fortnight twenty sums of 1,000*l.* each have been anonymously presented to metropolitan charities.

MEDICINE.

THE DIAGNOSTIC LAWS OF THE LOCALISATION OF CHRONIC DISEASES OF THE NERVOUS SYSTEM. BY DR. M. BENEDIKT, PROFESSOR IN THE UNIVERSITY OF VIENNA.*

(Concluded from page 114.)

After we have explained what symptoms of central origin have a determinate localisation, and of what kind this localisation is, the importance of the diffusion-law becomes clear to us. Through the whole history of the pathology of the nervous system, from the days of Bell and Romberg, the tendency has been to concentrate in one focus all the aggregates of symptoms in special cases and in certain individual forms of disease. I call to mind only the endeavour of Remak, to localise the different forms of tabes according to their complications.

Still more striking is the question of paralytic dementia. While Meynert was obliged, on account of the preponderance of atrophy of the frontal lobe, to deduce the symptoms of paralytic dementia from disease of this part, Westphal, on the contrary, saw the most essential anatomical precursor of the disease in the changes in the spinal cord. If we analyse the phenomena of paralytic dementia according to the diffusion-law, we shall neither localise it in the frontal lobes with the first author, nor endeavour with the second to connect it with the cauda equina; but we shall first of all determine what symptoms can be localised with accuracy, and thence arrive at the conclusion that paralytic dementia is a disease of diffuse character, extending over the whole of the central nervous system. We shall localise tabetic phenomena in the posterior columns of the spinal cord; alalia, dysphagia, and, in general, the signs of progressive paralysis of the cerebral nerves, in the nuclear region of the cerebral peduncles; hemiplegia without convulsions in the central ganglia or in the cerebral peduncles; hemiplegia with convulsions, or simple convulsions, in the cerebral hemispheres; disturbances of the motor stimulus in the frontal lobes; and certain irregular disturbances of the character described by Hitzig and Fritsch, also in the anterior lobes.

There are also numerous symptoms in paralytic dementia, the localisation of which is for the present impossible, or at least does not rest on a secure basis. To these belong, for instance, the motor disturbances of uncertain character, as when, for example, the patient can walk very well under an impulse, but not spontaneously. This phenomenon is manifestly an outcome of destruction of the innervation-energy of the centres of volition. Further, sufficiently accurate localisation is impossible in regard to the hastiness and the spastic twitchings observed in the movements in many cases of mental disease. Many of these disturbances must be ascribed to disease of the central ganglia on the one hand, and of the anterior lobes on the other. I deduced this several years ago (see my 'Neuropathological Observations in Mental Disease,' *Archiv der Heilkunde*, vol. viii.), before the valuable labours of the authors in Griesinger and Westphal's *Archives* appeared, and a special

pathological anatomy was created for dementia. Each new research confirms these views (see Lubimoff, Magnan, Mierzejewsky, *Archives de Physiologie*, 1873).

The diffusion-law affords us extraordinary aid in the so-called *sclérose en plaques*. The endeavour has been made to regard a certain aggregate of symptoms as connected with this disease; but each case has brought new complications. The reason is obvious: the aggregate of symptoms does not depend on the special form of invasion of the disease, but on the foci which are attacked; on the other hand, it is clear that there is a certain law of diffusion, in virtue of which disease passes on from one part to another, and that thus definite individual aggregate of symptoms are the result of diffuse central neuritis in its various forms.

It is an undoubted fact, which has been established in recent times, that, by our way of making and studying preparations, very many foci of disease are overlooked, and that hence great confusion is produced by explaining all the symptoms by the appearances actually found. By following the diffusion-law, it would be difficult to fall into such errors. For instance, in disease of the spinal cord attended with disturbance of speech, we could not be satisfied with observing the condition of the cord, but would make a microscopic examination of the hypoglossal nerve and its nuclei; and the same would be done in cases of alalia accompanying mental disease.

We know in the present day that it is an error to speak of *sclérose en plaques*, since it has been established by Bourneville's researches that the disease is not limited to foci, but that even the apparently healthy interstitial parts are diseased. We have in reality to deal with a diffuse neuritis, which derives its character, at least so far as regards the spinal symptoms, from a combination of disease of the anterior and lateral columns. The expression *sclérose en plaques* may be retained for clinical purposes; or it may be known as Charcot's type of diffuse central neuritis.

To diffuse neuritis belong also the ascending and descending forms of dementia, the combination of tabes ascendens with dementia (Joffe and Westphal), the combination of glosso-labio-pharyngeal paralysis with progressive muscular atrophy and paraplegia of the arms (Wachsmuth), the combination of general progressive muscular atrophy with disease of the nuclear region of the cerebral nerves without atrophy, the cerebral *sclérose en plaques* (Valentin), &c.

To the aggregate of symptoms which appear in the course of general neuroses, especially hysteria and dementia, belongs also Graves's or Basedow's disease, which very probably is to be localised in the transitional region between the spinal cord and the medulla oblongata.

It would be of great importance to know the law by which central neuritis is spread. Much may depend on the distribution of the vessels; and Duret's article on the distribution of the blood-vessels in the medulla oblongata (*Archives de Physiologie*, 1871) gives interesting information. The nucleus of the question, however, seems to me to lie altogether elsewhere. But I will not make any assertion until material is more abundant.

In the spinal cord, we can say from the researches that have been made up to the present time, that the prevalent tendency of disease is to extend upwards and outwards, while extension inwards is rare, at least in the chronic progressive forms of disease.

I will here make a final remark. Diffuse central

* *Allgemeine Wiener Medizinische Zeitung*, nos. 1, 2, 3, 1874. From an *Introduction to the Pathology of the Nervous System and to Electro-Therapeutics*, now in the press.

neuritis can very rarely be confounded with diffuse neoplasms; the local spread of neoplasms follows another law than that of chronic inflammation. A neoplasm, for instance, does not produce pure symptoms of tabes. But, from my own observations and the impressions made on me by the literature of the subject, it seems to me that a neoplasm may produce diffuse central neuritis at distant points, just as a focal (*herdweise*) neuritis may; so that the existence of a new growth cannot be absolutely excluded by the diagnosis of a diffused process of disease, even separated by healthy portions.

The importance of the diffusion-law not only in a diagnostic but in a therapeutic point of view, will be apparent from the following consideration. Chronic nervous diseases frequently present cerebral and spinal symptoms, each of which will have to be treated *in loco morbi*. In most cases with cerebral symptoms, for instance, all the manifestations are referred to an intracranial process, and the condition of the spine is overlooked so far as treatment is concerned. On the other hand, it seems an extraordinary paradox that psychical symptoms, and also amblyopia and dumbness, receive benefit from galvanisation along the spinal column. If we reflect, that in the progressively ascending form of paralytic dementia the disease may pass on from the cervical enlargement of the cord, or from the cerebral peduncles to the hemispheres, and this seems quite determined in the case of neuritis of the optic and auditory nerves, we shall say that there must be an irritation or paralysis within (for instance) the cervical enlargement, which causes the disease to advance: and it may be assumed that the tranquillising or stimulating effect of the current on the cervical enlargement may bring the secondary symptoms in a distant part to a standstill or cause them to recede. There is no doubt that, with regard to these symptoms, the law of diffusion (not to be confounded with the diffusion-law) has an anatomical foundation and a reflex influence on the vaso-motor nerves—relations which are yet for the most part unknown to us.

It is a very interesting fact, that in chronic inflammation of the anterior half of the spinal cord the process does not pass on to the cerebral nerves; and if this appear to take place in exceptional cases, it is because the posterior part of the cord is involved, although the symptoms of disease of this part are forced into the background by those of the disease of the anterior half.

MULREANY ON THE CONSTITUTIONAL RELATIONS OF SECOND DENTITION.—Dr. Joseph Mulreany (*New York Medical Journal*, January, 1874) records a number of cases occurring in his practice, and illustrating some practical points connected with the protrusion or cutting of the permanent teeth, especially the first four molars and the four wisdom or third molars. He believes that the physiological irritation of a new tooth cutting through the gum is the direct, though frequently unsuspected, cause of many diseases, both of childhood and maturity, and that the results of treatment demonstrate conclusively that such is the case. He says that every case of true hip-joint disease he has met with began between the fifth and seventh years, or it might be a few months earlier; and also that whatever mischief occurred to the joints took place during the cutting of the first four permanent molars, and that, after they

had come fairly through, the process of reparation fairly commenced. His illustrations are numerous, the more important ones being as follows.

Case I. Miss W., when a child of between five and six years, suffered from morbus coxarius. The first indications of the joint-disease were lameness and pain when the head of the femur was strongly pressed against the acetabulum. In process of time the usual symptoms of pain in the knee, flattening of the hip, and shortening of the limb took place, but all in a mild form, and all subsided at the end of her sixth year, coincidentally with the complete protrusion of her first four molar teeth, leaving her slightly lame for life. She was a member of a family of a highly scrofulous diathesis.

Case II.—Margaret McC., aged six and a-half years, had had pain in the left hip-joint and knee for over a year, and was slightly lame; the hip was flattened; the right upper molar was not yet protruded. The gum was well scarified, and she was ordered iodide of iron with senna as an aperient—the gum to be scarified once a week until the tooth came fairly through. In a month she was greatly improved.

Case III.—C. D., aged twenty months, had enlarged and suppurating cervical glands, but was in good condition. About the twenty-fourth month he had cut all his deciduous teeth, and every bad symptom disappeared. In his fifth year, he was suddenly seized with pains in his left hip. He was ordered an effervescing mixture containing iron and iodide of potassium, and a small blister was applied from time to time over the hip-joint. The gums were not scarified, owing to the violence of the patient. This condition continued for a year and a half; sometimes he could walk without the aid of a crutch, but invariably, when he had a teething spell, he was forced to crawl about on all-fours. At this time a surgeon, who was called in consultation, diagnosed such an amount of disease as to warrant immediate resection of the hip-joint, though Dr. Mulreany was convinced that it was a case of morbus coxarius brought into action by dental irritation. Amputation of the head of the femur was attempted, but a deep and ample incision down to the capsular ligament assured the operator that the joint was too sound to justify him in cutting into it. The operation was abandoned; but the final issue of the case is not stated.

Case IV.—A boy, aged six years, was seen in consultation. His physician stated that for six weeks the boy had had a kind of remittent fever, worse at night, with obstinate constipation. On examination, it was found that the first four molars were pressing against the gums, causing much tension, and that there had been epistaxis. A few days later, the child growing worse, the gums were scarified, a laxative mixture was given, and in two days the attack was concluded. An important medico-legal point sometimes arises between the eighth and fifteenth year, the inflamed condition of the gums over the bicuspsids often giving rise to a purulent discharge from the vagina. Too often such discharges have been received as testimony of rape.

Of the phenomena associated with dentition between the seventh and fifteenth year, scrofula of the bones, nocturnal incontinence of urine, chorea, and heart-affections are the most common.

The following cases have a bearing on the cutting of the wisdom-teeth.

Case VII.—Mr. V. aged twenty-three, was subject to violent bilious attacks, low-spirited, sleepless,

constipated; he had frequent epistaxis and pain in the articulations of the lower jaw. None of the wisdom-teeth were through. His gums were scarified, and he was ordered to do the same frequently, and to take a little tincture of iron, and an infusion of senna. He was cured.

Case VIII.—Miss A. D., aged eighteen, tall, fair, anæmic, had a cardiac bruit, violent headaches, profuse epistaxis, and irregular menstruation; the wisdom-teeth were not quite through. Her gums were thoroughly scarified frequently, and quinia and tincture of iron, with senna as an aperient, were given. She recovered.

Case IX.—Miss B., aged twenty, had profuse epistaxis, preceded by jaw-ache, approaching phthisis of the right lung, quick pulse, loud anæmic cardiac bruit, amenorrhœa, frequent micturition, and constipation. The wisdom-teeth had not shown themselves. Her gums were scarified, and she was ordered quinia, iodide of iron, and tincture of digitalis.

Case X.—Miss S., aged seventeen, was pale and exsanguine, and had palpitations of the heart, headaches, constipated bowels, menorrhagia, coated tongue, and a chlorotic bruit. She had lost great quantities of blood, owing to nervous obstruction at the centre of the circulation, caused by dental irritation from the wisdom-teeth acting directly on the heart. Scarifications, iron, and digitalis effected a speedy and perfect cure.

Case XI.—Mrs. J. M. S., aged nineteen, had been married six months, during which time she had had a coloured discharge from the vagina. None of the wisdom-teeth were present. Scarifications and tincture of iron gave the happiest results.

Dr. Mulreany proceeds to state that dental irritation may be the cause of dropsical effusions, both in the chest and in the abdomen, of heart-affections, of hysterical troubles of the joints, of masturbation, and of sterility and miscarriage, and gives cases in support of his views; but he asks that the physiological irritation of which he speaks shall not be confounded with the pathological irritation of an old, decayed, and carious tooth producing periostitis and gum-boil.

FRÄNKEL ON HÆMORRHAGIC LARYNGITIS.—Dr. B. Fränkel gives the history of an interesting case of hæmorrhagic laryngitis (*Berliner Klinische Wochenschrift*, no. 2, 1874). A married woman aged twenty-eight came under treatment on April 26, on account of shortness of breath, hoarseness, and blood-spitting. Her health had generally been good. From her youth she had been subject to frequent epistaxis, especially after violently blowing the nose, but the bleeding had never been copious. Accidental wounds had never bled freely, and no member of her family had shown a hæmorrhagic tendency. The patient was in the ninth month of her fourth pregnancy. During her last two pregnancies she had often had cough and hoarseness, but she had not before suffered from shortness of breath or hæmoptysis. During her present pregnancy, she had had frequent morning sickness. A fortnight before she came under observation, hoarseness came on. Ten days later, dryness of the throat and dyspnoea, and three or four days since, blood-spitting, commenced. There was loud stridor on respiration. The laryngoscope showed the mucous membrane of the larynx universally red and swollen. The colour was not uniform—some parts appearing bright red, others

dark red, and others again nearly black. The vocal cords at first appeared of dark colour, but after the expectoration of some dark clotted blood the cords appeared of bright red colour, and covered with fluid blood. The interarytænoid fold was much swollen. The mucous membrane of the pharynx was slightly red, but scarcely at all swollen. The heart and lung sounds were quite normal. The patient stated that from time to time she had attacks of dyspnoea, with stridor, which ceased after the expulsion of clots of blood.

These attacks were especially frequent during the night. On a subsequent visit, Dr. Fränkel observed the sequence of the phenomena. An attack of dyspnoea, with stridor, ceased with the expulsion of coagula from the larynx. During the stage of dyspnoea and stridor the vocal cords and the interarytænoid fold appeared almost black, and the margin of the glottis was rendered uneven by small reddish black projections, while the interarytænoid fold was covered by bright red blood. A moistened brush was introduced into the larynx, and the patient coughed up some blood-clots, whereupon the breathing became more free, and the dark swellings had disappeared. The mucous membrane of the larynx and that of the trachea, where it was visible, then appeared intensely red and injected. By the aid of the mirror the whole process of capillary submucous hæmorrhage, transudation, and clotting of blood on the surface of the larynx could be seen. When dyspnoea and stridor passed off the voice remained hoarse, and the cough had a husky sound. The larynx was touched with a solution of nitrate of silver (1 part in 15). The bleeding continued to recur more or less frequently and copiously for about three weeks. On some days the dyspnoea, stridor, and blood-spitting, recurred about every half-hour; on one occasion half a cupfull, and on another a cupfull of blood was coughed up. On May 24 she gave birth to a healthy boy, and from that time there was no return of the bleeding.

When last seen, on September 23, she was nursing her fourth child, and appeared in perfect health. The voice was feeble, but not hoarse. There was some swelling of the interarytænoid fold, and the vocal cords were slightly thickened, red, and injected. A most careful examination detected nothing wrong in the lungs or in the heart.

In this case, then, by direct laryngoscopic observation the existence of hæmorrhagic laryngitis and tracheitis was ascertained. The same pathological condition may have extended to the mucous membrane of the bronchi, but of this there was no evidence. It is suggested by the author that the frequent vomiting during the later months of pregnancy may have increased the congestion and determined the hæmorrhagic character of the laryngitis.

GEORGE JOHNSON, M.D.

DISEASES OF CHILDREN.

GALLASCH ON A RARE KIND OF LEUCÆMIA IN CHILDHOOD.—Dr. F. Gallasch (*Fahrbuch für Kinderheilkunde*, Dec. 15, 1873) reports a case occurring in a child four and a half years old. The parents were healthy; there was no taint of syphilis. The child had been subject to bronchial catarrh with occasional swellings of the glands of the neck. There had been no bleeding at the nose. It never had the usual children's complaints. Before its admission into the hospital it had suffered from an asthmatical cough

for the last six weeks. There had been no fever nor sickness. The child had lost flesh very sensibly during the last fourteen days, becoming pale and bloodless. After a stay of three months and a half in the hospital it died comatose. In the *post mortem* examination all the lymphatic glands were found much enlarged, also the liver, spleen, Peyer's patches, and solitary glands. The kidneys were pale, of normal size. The testicles and lachrymal glands were enlarged, especially the latter. Microscopical examination of the testicles and lachrymal glands showed excessive lymphoid infiltration into the surrounding areolar tissue, compressing and diminishing the gland substance. The same lymphoid infiltration was found in the other glands, showing that the progress of the disease was the same in all the structures.

W. C. GRIGG, M.D.

RECENT PAPERS.

Intestinal Catarrh in Infants. By Dr. G. C. Stage. (*Ugeskrift for Læger*, nos. 1 and 3, 1874.)

Lithotripsy in Children. By Dr. G. Oppizzi. (*Gazzetta Medica Italiana-Lombardia*, no. 4, 1874.)

PATHOLOGY.

MENZEL ON SPONTANEOUS STRANGULATION OF THE FINGERS.—Dr. A. Menzel, last year, observed the following conditions in a woman aged forty-four (*Gazzetta Medica Italiana-Lombardia*, no. 31, 1873). The right middle finger, at the middle of the first phalanx, was suddenly contracted to a short pedicle, from which hung a round movable swelling as large as a hen's egg. The pedicle and tumour were covered by skin, the epidermis of which seemed thickened. The surface of the swelling was smooth, but less so near the pedicle, where the epidermis was wrinkled, of pasty consistence, and painful on pressure, although insensible to the prick of a needle. The part was often the seat of spontaneous and very severe pain. The right index finger presented, at the middle of the second phalanx, a deep furrow on the ulnar and dorsal aspects, less distinct on the palmar, and scarcely perceptible on the radial aspect. The phalanges were movable. The nail was claw-shaped. The right thumb was normal, and the fourth and fifth fingers nearly so. The left thumb and index finger were complete; the other fingers were wanting. The left foot was slightly in a state of varus; the toes were adherent to each other. The great and second toes were connected with the foot only by the plantar skin, being divided above by a deep furrow. There were no nails on the first, second, or third toes. The toes of the right foot were without nails; the great and second toes were united at the first phalanx. All these defects were congenital.

The tumour on the right middle finger was removed by scissors; there was no hæmorrhage. On cutting through it and its pedicle, the surface of the incision had a soft, moist yellow appearance; the peduncle was pale and firm, and passed into the tumour, ending at its centre in a bony knob. On microscopic examination, the epidermis was found to be thickened, and its deeper layer exclusively formed of spinous cells. The papillæ were regularly arranged; they were long, often bifid or trifid. The sudoriparous glands were well formed, but their ducts were straight in-

stead of spiral. The remainder of the swelling had the appearance of subcutaneous tissue. The walls of the vessels were thickened; and the bone was tolerably porous. On longitudinal section of the pedicle, it was found to consist of connective tissue, without any bone; the fibres running in a direction parallel to the axis of the pedicle. The vessels were arranged as in bone. On the cutaneous surface of the pedicle, along with dwarf papillæ, there were large strong ones, alternating with others which were very long and slender, and bifid or trifid. There were irregular interpapillary fossæ.

Dr. Menzel remarks that the possible causes of spontaneous strangulation of the fingers are twofold; either the connective tissue contracts like a cicatricial ring, dragging the cutis inwards, or the epithelium itself forms a furrow in the tissues. The condition of the parts which he found on section, and the congenital nature of the deformity, lead him to adopt the idea of an epithelial furrowing, having its normal counterpart in the division of the hand into four fingers by the formation of four sulci in the seventh week of foetal life. He has not been able to find a similar case, except one recorded by Dr. Wucherer in Virchow's *Archiv*, vol. lvi.

[Mr. Erichsen, in his *Science and Art of Surgery* (sixth edition, vol. ii. p. 298), gives two drawings of a case of this kind which came under his observation in a child some years ago. Two of the fingers were marked by deep transverse sulci; others were shortened and terminated in rounded nodules, with a narrow pedicle connecting them with the proximal phalanx.—*Rep.*]

A. HENRY, M.D.

RECENT PAPERS.

Contributions to the Study of the Pathological Histology of the Great Sympathetic Nerve. By Dr. V. F. Colomiatti. (*Giornale della R. Accademia della Medicina in Torino*, no. 2, 1874.)

ANATOMY AND PHYSIOLOGY.

TOMSA ON THE STRUCTURE OF THE SKIN.—Professor Tomsa of Kiev in Russia publishes in the *Archiv für Dermatologie und Syphilis* (1873, i.) a long and elaborate paper on various points in the anatomy and physiology of the skin. Starting from the zones and territories described by Langer in his paper read before the Vienna Academy of Sciences (*Sitzungsbericht der k. k. Akad.*, vols. xlv. and xlv.), the author describes the felted arrangement of the fibrillæ in the papillary layer of the corium, and the looser texture of the deeper or reticular layer, where the great bundles of fibrous tissue form rhombic and polygonal spaces by their intersection, which make on section a kind of lattice-work. There is also a distinct, though not uniform, arrangement of this tissue in successive layers, parallel to the surface. All this structure the author finds equally in the zones, which more or less perfectly encircle the limbs and trunk, and in the spaces between them. He then shows the arrangement of the hair-follicles, which are connected, not by their blind extremities, but by their edges, with four bundles of fibres running obliquely up from the reticular layer of cutis, and crossing each other obliquely before they expand in the papillary layer so as to surround the mouth of the follicle. This applies chiefly to the white fibres, as

seen in tanned specimens of human skin. The elastic tissue is more irregularly disposed, while the inter-fibrillar cement (*Kittsubstanz*) pervades all parts alike.

The author does not find any continuous layer of endothelium lining the spaces into which the cutaneous lymphatics open.

The arrangement of the muscles of the skin is next described with great minuteness, and illustrated by figures of a mechanical model constructed for the purpose.

The second part of this paper deals with the blood-vessels of the integuments. The plan employed by the author was to inject first the veins and then the arteries with different coloured fluids, so that the place of meeting in the capillaries could be afterwards recognised. Professor Ludwig's apparatus was used; the injections consisted of size, coloured with solution of Berlin blue, watery solution of hydrated oxide of iron, dialysed and afterwards concentrated by evaporation, or ferrocyanide of copper dissolved with oxalate of ammonia. Carmine injections did not succeed; the colour stained the surrounding tissues, in spite of all precautions. Pieces of skin in which the injection had run well, from the face, arm, foot, hand, scrotum, trunk, &c., were hardened in alcohol: sections were made in various directions, and cleared with acetic acid and glycerine, or with turpentine.

The most important results of these observations, which are illustrated by numerous well-executed coloured drawings, are as follows.

1. There is no direct communication between the cutaneous arteries and veins, as supposed by M. Sucquet: the capillary network is complete throughout.

2. There is no special capillary system for the fibrous and elastic tissue of the skin. Fine injections show that the capillaries are arranged as follows: (*a*) in the papillæ, where their function is supposed by the author to be the formation of epidermis; (*b*) around the convoluted part of the sweat-glands, and the sacs of the sebaceous and hair-follicles; (*c*) among the arrectores pilorum and the muscular fibres of the dartos; (*d*) surrounding the nerve-fibres and the minute ganglioniform enlargements which have been described by the author; (*e*) forming a somewhat loose and scanty network around the arteries—external vasa vasorum; (*f*) supplying the lobules of adipose tissue. Two points in the description of these capillary systems are worthy of special notice: one, that the sweat-glands are quite unconnected in their blood-supply with the papillæ, so that there is no second capillary network in the skin, as in the kidney; the other, that the special capillaries of the adipose tissue can be recognised in the foetal integument before any fat-cells have been formed.

3. Three vascular layers may be distinguished in the human skin: a deep one, supplying the subcutaneous fat and deepest part of the corium, a mid-layer for the sweat-glands, and a superficial papillary network. The last discharges its blood into a venous plexus, which is almost erectile in character. The three corresponding sets of veins finally open into common collecting branches, visible to the naked eye.

4. The author confirms the observations of those histologists who have frequently met with papillæ which are at once nervous and vascular.

P. H. PYE-SMITH, M.D.

MALASSEZ ON THE NUMERATION OF THE RED CORPUSCLES IN BLOOD.—Dr. Malassez has recently published a memoir on this subject in Paris. After analysing carefully the methods of MM. Vierordt, Cramer, Mantegazza, and Potain, he describes a method devised by himself. It consists, briefly, in making, with a pipette of particular form, a determinate mixture of blood with a liquid, which produces a spreading out of the blood, without alteration of the corpuscles. The liquid employed has, for formula:—

Solution of gum arabic, giving a density of 1.020 . . . 1 vol.
Solution of sulphate of soda and chloride of sodium, in equal parts, giving also a density of 1.020 . . . 3 vol.
To which is often added—

Carbonate of potash or of soda . . . 1 drop in 15 grains of serum.

Instead of spreading the mixture in lines, like M. Vierordt, or depositing it in droplets, like M. Potain, Dr. Malassez introduces it into a very fine capillary tube, which one may examine with a microscope, as one examines the vessels in a frog's foot. Then, counting the corpuscles comprised in a certain length of tube (the volume corresponding to this length being determined), one may, by easy calculation, infer the number of corpuscles per cubic millimetre.

A micrometric quadrilled ocular, the quadrilled part of which does not occupy the whole field, and has a square form, enables the observer to count the corpuscles without difficulty.

Dr. Malassez describes a number of physiological and chemical researches made with the aid of this process. The following are some of his principal conclusions.

'The globular richness of the blood, or the number of red corpuscles per cubic millimetre, is extremely variable in the different parts of the circulatory system.

'The variations have their beginning (*point-de-part*) in the capillaries, and perhaps, also, in the small arterioles and venules. They are different in direction and intensity according to the tissues and the organs, and according to the functional state of these.

'The diminution of globular richness is due either to the destruction of corpuscles (liver?) = *real diminution*; or to the absorption of liquids producing dilution of blood (intestine during digestion) = *apparent diminution*.

'The increase of the globular richness is due either to the formation of corpuscles (spleen?) = *real increase*; or to exosmosis of a certain quantity of the liquid part of the blood, which is then either lost by evaporation, or employed in secretions, or taken up by the lymphatics (skin, muscles, submaxillary glands, kidneys) = *apparent increase*.

'Such diminution and increase are in direct proportion to the intensity of the causes indicated, and in inverse proportion to the quantities of blood which pass in the capillaries, and on which said causes act. It is thus that the blood is the less concentrated in a gland the more the latter secretes.

'The variations found in the large vessels appear to be secondary. Other things being equal, they are nil, or little marked in the arterial system. They are, on the contrary, very well marked in the venous system. This difference results from the fact, that the arterial blood proceeds from a single tissue, while the venous blood is formed by the mixture of bloods coming from very different sources. We cannot, then, (as has often been attempted by observers), seek to

compare, in a general manner, the globular richness of arterial blood with that of venous blood.

'These local variations appear on the whole to compensate each other. I have been able to assure myself, by a certain number of experiments (which I hope to publish shortly), that under the influence of certain circumstances, the general globular richness may also present variations, and that, in the actual conditions of life, these variations oscillate about a certain state of normal equilibrium to which they incessantly tend to return.

'In most cases, the figures which I have given in this work represent, exactly enough, the state of the blood, and the intensity of local variations of globular richness. But in others, which I have specially indicated, the results have been tainted with error, not because the method of numeration employed was less good than another, but because the operations to which it was necessary to subject the animals were apt to cause serious perturbation in the phenomena which I sought to study.'

ALEX. B. MACDOWALL.

DITTMAR ON THE VASO-MOTOR CENTRE IN THE MEDULLA.—Owsjannikow placed the under limit of the vaso-motor area in the rabbit about 4 millimètres ('15 inch) from the calamus scriptorius, the upper limit 4 millimètres higher, 1·2 millimètres below the corpora quadrigemina. C. Dittmar (*Berichte der kön.-sächs. Gesellschaft der Wissenschaften, Math.-phys. Classe*, 1873), in order to avoid the uncertainty of making the sections of the medulla with the free hand, as performed by Owsjannikow, has invented an apparatus for holding a small knife, which can be moved in any direction, and for any distance, by means of a finely graduated screw. He also laid the spinal canal more freely open, in order to avoid the accumulation of blood in the sac of the dura mater, as this has been shown to present a reflex action from reaching the vaso-motor nerves. Any bleeding from the bone was easily arrested by the application of small pieces of paper which had been dipped in tincture of iron and then dried. The blood-pressure was measured in the carotid.

The author confirms in the main the results of Owsjannikow, and finds that in the rabbit the lower limit of the vaso-motor area lies about 3 millimètres above the point of the calamus scriptorius, 1 to 1½ millimètres ('04 to '06 inch) below the lower margin of the tuberculum laterale. The upper limit lies in the neighbourhood of the fovea anterior, about the upper margin of the corpus trapezoides. Following the indications given by the experiments of Miescher and Nawrocki, the author found that sections of the anterior and posterior columns, as well as the gray substance of the same, within the third cervical vertebra, did not alter the reflex increase of blood-pressure on stimulation of the sciatic nerve. It, therefore, follows that not only the centripetal fibres (Nawrocki) of the sciatic nerve whose stimulation produces the reflex contractions of the vessels, but also the vaso-motor nerves, run in the lateral columns of the spinal cord. The remainder of the anterior column, pyramids (lying towards the middle line), and the posterior part of the remainder of the lateral column, can be destroyed without materially influencing the reflex vaso-motor activity. There only remains, therefore, on each side, a small prismatic space within the vaso-motor area, whose injury disturbs or causes each reflex to cease. It forms the anterior part of the lateral column.

WILLIAM STIRLING, D.Sc., M.B.

RECENT PAPERS.

Results of Electrical Examination of the Cortical Substance of the Brain of a Monkey. By Dr. E. Hitzig. (*Berliner Klinische Wochenschrift*, no. 6.)

SURGERY.

PORTA AND VALERANI ON THE RADICAL CURE OF VARIX BY THE INJECTION OF HYDRATE OF CHLORAL.—Professor Luigi Porta, in an article communicated to the Royal Lombardian Institute, and quoted in the *Gazzetta delle Cliniche* (no. 1, 1874) gives an account of the clinical observations which he has made on the coagulant property of hydrate of chloral, and especially of its use in the treatment of varix.

He reports fifteen cases of varix of the leg treated successfully by the subcutaneous injection of hydrate of chloral, beginning with a gramme, and then reducing the dose to a half or a third of a gramme. The coagula are formed at once, and the patient is confined for a few days to bed, to obviate the risk of phlebitis. The coagula ultimately are absorbed, and the veins become atrophied, or remain pervious, though not varicose.

The accidents which may occur are the following. The thrombus may soften; but this only impedes the cure for a time. Phlebitis may occur; but it is slight, and disappears in a few days. Very limited supuration may take place; it does not delay the cure, and perhaps depends on the escape of a small quantity of the chloral into the connective tissue. This may be prevented by drawing up the piston before withdrawing the needle. Circumscribed sloughing of small portions of the skin has been observed in old subjects, probably also from escape of the chloral into the connective tissue. Professor Porta thinks it probable that this mode of treatment will be found applicable also to varicocele (of which he has had a successful case) of various subcutaneous nævi, aneurismal varix, and hæmorrhoids.

Dr. Valerani, writing on this subject in the *Annali Universali di Medicina* for December 1873 (*Gazzetta delle Cliniche*, no. 5, 1874) says that any new method tried for the cure of varix should be free from danger either immediate or remote, easy of application, and fairly constant in result. All these conditions are present in the treatment proposed by Porta.

In order to explain the *modus operandi* of this treatment, Dr. Valerani makes some observations on the venous circulation in the lower limbs. Until within the last few years, he says, it has been believed that the subcutaneous venous system of the lower limb is complementary to the deep venous circulation of the limb; that is to say, that the saphenous veins are destined to receive the reflux blood from the deep veins when the circulation in these is obstructed by muscular contraction or by other causes. The error of this opinion, however, has been demonstrated beyond doubt by Verneuil, Le Dentu, and more recently by Giacomini. On examining the large anastomoses between the superficial and deep veins, it is always found that the valves have their concavity directed inwards; that is, they are so dispersed as to allow the blood to flow from the superficial to the deep veins, but not in the opposite direction. The reflux from the deep to the superficial veins is only possible when the valves are imperfect.

Varix of the subcutaneous veins is then a consequence of dilatation of the deep veins. The deduction from this is, that a fibrinous coagulum should be formed at the point where a valve exists in the normal state, so as to take its place, and prevent the reflux of blood from the deep to the superficial veins.

Professor Porta, not having taken into consideration the anastomoses between the saphenous and deep veins, does not say what points should be selected for making the injection of chloral. On the other hand, Dr. Valerani says that the points where the varicosity is hardest and most prominent, are those where the injection should be made; they indicate the neighbourhood of the opening of an anastomosing branch, where there should be a valve, which is, however, more or less insufficient.

The operation is very simple. The injection is made with a Pravaz's syringe, the point of the needle being inserted in the largest knots of the varicose zigzag. The patient should be standing, that the veins may be more tense; if he be in bed, they are rendered tense by the finger. There is no hæmorrhage.

Valerani has seen the injection followed by softening of the clot, slight phlebitis, abscess, and sloughing; but, in spite of these complications, the result may be said to be always successful. The complications are always local, and are not attended by constitutional disturbance. It is sometimes necessary to repeat the injection, especially when the clot softens, and the vein opens and gives exit to some drops of black blood, threads of softened fibrin, and even drops of sanguinolent pus. After a longer or shorter time, the varix disappears, and the veins resume their normal dimensions, presenting the aspect of small cords, not tortuous or painful.

Dr. Valerani gives the history of several cases of large varix which he has treated with excellent result by this plan.

A. HENRY, M.D.

LEFFERTS ON FIBROID GROWTHS ON THE VOCAL CORDS.—Dr. Lefferts (*New York Medical Record*, February 2, 1874), reports two cases of fibroid growth on the vocal cords removed with the aid of the laryngoscope. In both cases, the growth was very small and situated on the anterior third of the vocal cord; in one case, the growth was removed with Störk's guillotine; in the other with Türek's forceps. In both instances, the voice was fully restored. In one of the cases, the symptoms were very anomalous; dysphagia and constant pain being the most marked symptoms, although the growth was an exceedingly small one lying entirely within the cavity of the larynx. The following is the report of this case.

A man, aged twenty-six, whilst drinking a glass of beer in January 1871, suddenly felt an obstruction in his throat. Believing that he had swallowed some foreign body, he introduced his finger into his throat as far as possible in order to remove it; this act was followed by vomiting, during which the sensation passed away. At this time he had neither difficulty of breathing, nor cough, nor had he previously noticed any alteration in his voice. Immediately after however, he observed that his voice was daily becoming weaker. The feeling, as if a foreign body were in the throat, returned at times, but the sensation was never as marked as on the first occasion. Respiration and deglutition remained normal for some time, and the patient had no pain. The weakness of

the voice, however, increased at times even to complete aphonia. In February 1873, whilst eating, the sensation as if a foreign body were in the throat suddenly returned. He described the feeling as similar to that experienced in 1871. He again attempted to remove the supposed foreign body with his finger, upon which he had a severe attack of coughing, and spat blood. After that the hoarseness rapidly increased, and for two months before the operation he was completely aphonic. He also began to have constant pain, which was aggravated by swallowing.

All the symptoms were dissipated by the removal of the growth.

MORELL MACKENZIE, M.D.

SEVERI ON HYDROCELE OF THE ROUND LIGAMENT OF THE UTERUS.—Dr. Severi (*Rivista Clinica di Bologna*, 1873, and *Gazzetta delle Cliniche*, no. 2, 1874) refers to the recorded cases of this affection, and relates the case of a young woman aged twenty, who had a swelling in the upper part of the right labium, for which, supposing it to be a hernia, she had for some time worn a truss. The absence of pain and of disturbance of digestion, the course of the malady, the narrowness of the inguinal canal, the equality in the visceral impulse on the two sides, all excluded the idea of ordinary hernia. The swelling had existed four years; and the absence of any suffering during the catamenial periods excluded the idea of ovarian hernia. It was quite transparent when examined by the light of a candle. The elongated form of the swelling and its direction along the inguinal canal led Dr. Severi to regard the case as one of hydrocele. Its contents were removed by puncture, but it refilled; a second puncture, followed by the injection of a mixture of tincture of iodine and water, effected a complete cure.

ROMEI ON FRACTURE OF THE ASTRAGALUS WITH DOUBLE DISLOCATION OF THE FOOT.—Dr. F. Romei relates in the *Bullettino delle Scienze Mediche*, May 1873 (quoted in *Gazzetta delle Cliniche*, no. 1, 1874) the case of a man named Raffaele Zecchi, who fell from a height of about two yards in getting out of a cart, and sustained a fracture of the neck of the astragalus with complete displacement of the head of the bone upwards and outwards, and dislocation outwards of the body of the astragalus, complicated with a contused and lacerated wound over the outer ankle, through which the end of the fibula projected. An attempt to replace the head of the astragalus was made, but in vain; and it was resolved to remove it. This was done by making an incision in a slightly oblique direction from within outwards over the head of the bone, and cutting through the astragalo-calcaneal ligament with scissors. By rotating the foot outwards, the astragalo-tibial dislocation was reduced; and the pain, which had been very severe, was removed.

The foot was put up in an immovable apparatus and ice was applied. On the forty-eighth day the patient was able to sit up for a great part of the day; a month later, he could put the foot to the ground without pain, and ultimately regained perfect power of walking.

As an appendix to this case, Dr. Romei relates the following, which occurred in the practice of Professor Rizzoli.

A man named Pietro Marani was thrown from a vehicle drawn by a runaway horse, and alighted on his right foot. When he was brought to the hospital two days afterwards, the sole of the foot was turned

inwards, there were two wounds in the integument of the external malleolus, and the end of the fibula projected, the leg and foot being much swollen. The limb was placed in as good a position as possible, an antiphlogistic regimen was ordered, and it was decided to delay any attempt at reduction till the foot was in a more favourable condition. The patient died of septicaemia on the twenty-second day.

The necropsy discovered an oblique fracture with displacement of the astragalus, with dislocation of the astralago-calcaneo-scaphoid articulation, and wedging of the anterior fragment of the astragalus (consisting of nearly the entire head of the bone) between the scaphoid bone and the posterior fragment.

Dr. Romei remarks that in both these cases the astragalus was broken at its neck, and in both there was dislocation of the foot, in the first above and in the second below the astragalus; and in both the obstacle to reduction was the displaced anterior fragment of the astragalus. A. HENRY, M.D.

RECENT PAPERS.

- A Contribution to Colpocystotomy. By Dr. Karpinski. (*Berliner Klinische Wochenschrift*, no. 4, 1874.)
 Continuation of Report of Cases of Lithotomy. By Dr. Victor von Ivanchich. (*Allgemeine Wiener Medizinische Zeitung*, no. 1.)
 An Extension Machine for the Upper Arm. By Dr. C. Gusenbauer. (*Wiener Medizinische Wochenschrift*, nos. 3 and 4, 1874.)
 Fifteen Cases of Fracture of the Skull. By Dr. G. Mo. (*Gazzetta delle Cliniche*, nos. 2 et seq.)
 Two Cases of Retention of Urine; Difficulties of Treatment. By Professor C. Paoli. (*Lo Sperimentale*, vol. xxxiii. no. 1.)
 Clinical Contribution to the Treatment of Onychia Maligna. By Dr. V. Babacci. (*Ibid.* vol. xxxiii. no. 1, 1874.)
 Large Sarcoma of the Neck removed Successfully. By Professor E. Bottini. (*Giornale della R. Accademia della Medicina in Torino*, no. 2, 1874.)
 A Rare Form of Laryngeal Narrowing, with Remarks on Tracheotomy. By H. Laub. (*Hospitals-Tidende*, no. 4, 1874.)
 Treatment of Haemorrhoidal Tumours by Nitric Acid. By Dr. L. Berruti. (*L'Indipendente*, no. 3, 1874.)
 On Resection of the Wrist-joint after Injury. By Dr. E. Küster. (*Berliner Klinische Wochenschrift*, no. 8.)

MATERIA MEDICA AND THERAPEUTICS.

CORYLLOS ON TWO CASES OF TRAUMATIC TETANUS SUCCESSFULLY TREATED BY CHLORAL.—Dr. Coryllos reports (*Allgemeine Wiener Medizin. Zeitung*, Jan. 27) two cases of traumatic tetanus successfully treated by chloral after the removal of a foreign body from the wound.

The first case was that of a woman forty years of age, who in the month of November, 1872, wounded her right middle finger with a sharp-pointed stick. A month afterwards, when the wound had nearly healed, in the evening, after a day's washing, she had severe pain in the whole right arm, with swelling of the forearm. The next day she had a difficulty in opening the mouth and in moving her limbs; this difficulty increased until voluntary movement became impossible, and opisthotonos came on. Gradually the trismus increased, so that nourishment in the form of milk could be given only through a gap left by the previous loss of three incisor teeth. Violent tetanic paroxysms recurred more than ten

times in the twenty-four hours. After opium had been given without success, chloral was prescribed to the extent of first a drachm, then from $1\frac{1}{2}$ to 2 drachms daily. From that time the symptoms began to subside, and after a fortnight the patient complained only of weakness, but the mouth could not be fully opened until February 14.

Sixteen days after the onset of the symptoms, the patient removed from the as yet unhealed wound a piece of stick of the size of a pea, which up to that time had not been discovered. In the course of twenty days, $3\frac{1}{2}$ ounces of chloral were taken.

[The report of the case is somewhat wanting in precision, but apparently the foreign body was removed before the use of the chloral was commenced.—*Rep.*]

The second case is that of a labourer, forty years of age, who, on July 8, 1873, was wounded in the left temple by a pointed stick.

The wound, which was an inch long, was dressed with simple ointment and caused no inconvenience until July 13, when pain in the wound and swelling of the temple brought him to Dr. Coryllos for advice. There was then some difficulty in opening the mouth and some stiffness of the neck. The half-healed wound was probed, but no foreign body was detected. There was fever, and the tongue was coated. The left orbicularis palpebrarum was so contracted, that the eye could scarcely be seen. Contraction of the left levator and depressor anguli oris rendered it difficult to pass the finger between the teeth and the cheek. The left sterno-mastoid, also the omo-hyoid and sterno-hyoid muscles, were contracted so as to bend the head forwards and to the right. From time to time there occurred transient general tetanic convulsions, which increased in severity until the patient could get no rest. After a purgative, a drachm of chloral was dissolved in two ounces of water, and a table-spoonful given every hour. The patient after this dose slept all night, but the spasms returned on the following day. He went on much the same until July 16, when he was ordered to take $1\frac{1}{2}$ drachm of chloral in the twenty-four hours. The following day the pulse had fallen from 100 to 88, the mouth and the left eye were less firmly closed, and the tetanic paroxysms were less frequent. The wound had completely healed but the surrounding was swollen and tender on pressure. On July 20, all swelling having disappeared, a hard body was felt beneath the skin at one end of the scar. An incision was then made, and a sharp piece of wood three lines in length was removed. The following day another smaller piece of wood was detected by the probe and removed. During the night following the patient became excited after intercourse with his wife, he could not sleep, and endeavoured to leave the house (five years before he had suffered from mania). The tetanic symptoms returned with more violence and he again became feverish. Then $1\frac{1}{2}$ drachm of chloral was given and a grain of acetate of morphia in eight doses. After this he slept for two hours. Two days later he was still restless, and the attacks were more severe and prolonged. Two drachms of chloral were prescribed; the attacks became less frequent and violent, the mouth could be more freely opened, and some hours of quiet sleep were obtained. On August 10 there was a temporary relapse, after a short journey in a carriage; but by August 18, five weeks from the onset, he was convalescent, after taking altogether six ounces of chloral.

[One of the most interesting features of these two cases is the fact of a foreign body being discovered and removed some days after the infliction of the wound, and in one case after the wound had healed. In this respect, and in some other particulars, there is a close resemblance between these cases and two cases of traumatic tetanus recorded by the reporter in the sixth volume of the *Transactions of the Clinical Society*.—*Rep.*]

GEORGE JOHNSON, M.D.

RICE ON EMULSION OF COD-LIVER OIL.—Willard M. Rice, junior, pharmacist, offers (*American Journal of Pharmacy*, December, 1873) the following formula for the emulsion, which he thinks is superior to any other :—

| | |
|--------------------------|------------|
| B. Oleum morrhue | fl. 3viij. |
| Tragacanthæ | 3j. |
| Sacchari albi | 5iv. |
| Ol. gaultheriæ | gtt. lx. |
| Ol. sassafras | gtt. l. |
| Ol. amygd. amar. | gtt. x. |
| Aque | fl. 3viij. |

The tragacanth and sugar are to be dissolved in the water and the mucilage strained. In this are to be incorporated first the essential oils and then the cod-liver oil. This makes an elegant-looking emulsion, not too thick, containing fifty per cent of the oil, and of a rather pleasant taste and smell.

RECENT PAPERS.

- On Paracentesis Thoracis in Pleuritic Effusion. By Dr. L. Calastro. (*Gazzetta Medica Italiana-Lombardia*, no. 3, 1874.)
- A Double Pneumatic Apparatus for the Mechanical Treatment of Diseases of Respiration. By Dr. Von Cube. (*Berliner Klinische Wochenschrift*, no. 4, 1874.)
- Some Remarks on a Portable Pneumatic Apparatus. By Professor L. Waldenburg. (*Ibid.*)
- On the Introduction of Fluids into the Intestines and Bladder. By Professor Hegar. (*Ibid.* no. 6.)
- The Treatment of Pneumonia. By Dr. Adolf Hermann. (*Ibid.* no. 5.) [Conclusion of a long series of articles on the subject.]
- On Chloral Hydrate and its Medicinal Use. By Dr. Oscar Liebreich. (*Berliner Klinische Wochenschrift*, no. 5.)
- On Chloral Hydrate. By Dr. J. Pollak. (*Wiener Medizinische Wochenschrift*, nos. 4, 5, and 6.)
- A New Respiratory Apparatus. By Dr. K. Störk. (*Ibid.* no. 5.)
- Hydrate of Chloral in Nocturnal Incontinence of Urine. By Dr. E. Vecchiotti. (*L'Imparziale*, nos. 1 and 2, 1874.)

PUBLIC HEALTH.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.

Dr. Tripe read a paper at a recent meeting on 'Density of Population and other Causes of an increased Death-rate in the Metropolis.' He said that he wished to get the opinion of the members on the best method of calculating the death-rate of a district, for different medical officers of health took varying methods of doing so. He advised that the deaths in extraneous workhouses, if any, should be cast out, as well as deaths in hospitals, and also the population of the said institutions. The death-rate should then be calculated in the population corrected to July 1 in the year, and the percentage of deaths ascertained; the percentage of deaths in hospitals for all London should be ascertained by comparison with the population of all London, and added on to the death-rate of the district. In this paper, however,

he had eliminated the deaths and population of hospitals altogether, as being less likely to lead to error. He showed that the true death-rate of the Metropolitan Districts varied between 15·2 in Hampstead per 1,000 population, and 28·6 in St. George's in the East; that in the fourteen districts having the smallest death-rates, the range extended from 15·2 to 23·2 per 1,000 inhabitants, whilst in the fourteen other districts it varied between 23·4 and 28·6 per 1,000; and that these variations corresponded to a certain extent with the density of population. The tables showed the number of persons to an acre in each of the Superintendent Registrars' Districts, which varied between 5 to an acre in Lewisham and 237 in Westminster. He showed that out of the fourteen most crowded districts no fewer than eleven had a death-rate above the mean, whilst, in the fourteen least crowded, there were eleven having a death-rate below the mean of 23·2 per 1,000 persons. The mean of the least densely populated districts was only 20·9 per 1,000, with an average of forty persons to an acre, whilst that of the most crowded districts was 24·8 per 1,000 persons, or above 20 per cent. greater.

Dr. Tripe did not attribute this great difference to variations in the density of population, as, with the exception of Westminster and one or two others, the most densely crowded districts were also the poorest. To calculate the effects of the possession of comforts on health, he had taken the proportion of servants to population, not as being the best, but as being the one least likely to lead to error. In dividing the twenty-eight districts into two sets, it was found that the percentage of servants varied in the districts having most servants between 10·7 and 4·7 per cent. of the population; and in those having the fewest servants, between 4·5 and 1·9 per 100 residents. Considering that servants are usually in the prime of life, and rarely die in the houses of their masters, it is evident that the districts having the largest percentage of servants should have the smallest rate of deaths. But the differences were greater than could arise from this only, as the death-rate of the fourteen districts having the larger proportions of servants was only 20·8 against 24·9 in the fourteen other districts having the fewest servants. Another table was drawn, in which there were three columns, the first consists of nine districts with most servants and smallest number of persons to an acre, the rate of which was 19·5 per 1,000 inhabitants; the second, of districts most crowded, with the smallest percentage of servants, in which the rate was as much as 25·7; and the last consisting of districts least crowded, or having most servants, in which the rate was 23·4 per 1,000 population. Dr. Tripe then mentioned various other causes of increased death-rate in a district, viz. the greater or less number of persons receiving parochial relief; the configuration of the district; the presence or absence of fever-dens; more or less perfect drainage; good or indifferent sanitary supervision.

MEDICAL OFFICER OF HEALTH FOR PLYMOUTH.

The Council of the Borough Corporation of Plymouth have appointed Dr. Littleton their Medical Officer of Health for one year, at a salary of 50*l*. It is sad to find that the corporation of such an important garrison and seaport town should have so little appreciation of the duties and responsibilities of a public health officer, as to offer such a small stipend. A population of 70,000 persons, by no

means in the best possible sanitary conditions, will demand all the energy of its medical officer in organising a staff, and in carrying out sanitary measures. Dr. Littleton is well calculated to perform the work entrusted to him; and will, it is hoped, give such confidence to his fellow townsmen that they cannot allow such a niggardly salary to continue very long.

OBSTETRICS AND GYNÆCOLOGY.

PORRO ON A CASE OF MALFORMED TWINS.—Dr. Edward Porro, of Milan, relates in the *Gazzetta Medica Italiana-Lombardia* for December 13, 20, and 27, 1873, and January 3, 1874, an extraordinary case of twin-birth in which both the children were misshapen.

Tr. M., a tall, well-made, healthy woman, aged twenty-two, wife of a healthy husband, with no family history of disease or of deformity, became pregnant in February, 1873. She did not perceive foetal movements till towards the end of pregnancy; nor did the abdomen enlarge until the end of October, from which time, up to her delivery on November 18, it increased rapidly, causing difficulty of defecation and respiration, and pain in the right hypochondrium. In October, she lost appetite, which she attributed to fright at seeing a man killed by a fall from a scaffold.

On November 8, the midwife in attendance on her found the os uteri dilated sufficiently to admit the finger, and perceived indistinct *ballotement* through an abundance of liquor amnii. The presentation could not be made out. Constipation and difficulty of micturition, which had troubled her, were increased.

On November 15, labour-pains set in at noon, but they produced little effect, and sometimes ceased for an hour or more. In the evening, the os uteri was dilated to about 1·2 inch. The dilatation continued, but the liquor amnii did not escape until 1 p.m. on the 17th; the pains then ceased for four hours, at the end of which time distinct expulsive efforts set in. At half-past 1 a.m. on the 18th, Dr. Porro was called to her. On examination, he found the uterus reaching eight finger-breadths above the umbilicus. The parts of a foetus could be felt through the abdominal wall. The foetal heart-sounds were heard in the umbilical region, and an uterine murmur to the left. The pelvis was normal in shape and size. The internal genitals were rather oedematous, hot, and very tender.

On examination *per vaginam*, he felt a head, buttocks, and a right and a left foot. The head presented with the forehead towards the right obturator foramen, and the occiput towards the left sacro-sciatic ligament. Behind the left horizontal ramus of the os pubis were two feet—a right and a left; the left lay in front, near the symphysis, with the dorsal surface towards the pubes and the plantar towards the sacrum. The toes were closely applied to the right parietal bone; the tarsus and metatarsus lay against the plantar surface of the right foot, which had the toes turned towards the right and the heel towards the left. Above and to the inner side of the feet, the nates were felt, closely applied to the left side of the pelvis, near the spine and the great sciatic notch. The right hip lay above and to the inner side of the right parietal protuberance. No progress could be felt during the uterine contractions.

By means of the forceps, Dr. Porro removed, with some little trouble, a living male child, malformed, which survived ten minutes. About a quarter of an hour after the birth of this child, there was a discharge of a very large quantity of liquor amnii, and the head of a second child was found presenting with the vertex in the right occipito-cotyloid position. Ten minutes afterwards, a second malformed male foetus was expelled, which breathed imperfectly, and lived eight minutes. The placenta was expelled five minutes later; there was some hæmorrhage, but this was easily restrained by cold applications to the abdomen, compression of the uterus, and the administration of ergot. The umbilical cord of the first foetus was five-and-a-half inches long, and that of the second fourteen.

The first-born foetus had the head, limbs, and trunk arranged in such a way that the body was almost spherical. The feet lay against the right parietal protuberance; the left, which was the upper one, had the dorsum turned forwards; the right, somewhat lower down, further back, and a little more to the left, had the dorsum directed backwards in contact with the right parietal bone. The right hip was affixed closely to the occipital protuberance; the left was situated in front, to the left. The sacrum looked laterally to the left, and obliquely downwards. The anal aperture was directed forwards, at the level of the right parietal protuberance. The legs were crossed together in the form of an X; the right leg lay on the right tempero-parietal region, and the left on it. The right thigh lay obliquely against the occipital and right temporal bones; the left touched the abdomen and the lower part of the right costal region, and was turned upwards and forwards. The nape of the neck was in contact with the upper dorsal region, the cervical vertebræ pressed on the pharynx, and the right shoulder rested on the mastoid region. The neck was large and short, like that of a batrachian. There was dorsal cyphosis, and left lumbar scoliosis, with slight twisting, so that the right trochanteric region touched the right temporo-parietal in an oblique direction. The thorax was keeled on the right side, the ribs there being bent at an angle. The arms were fastened down to the sides of the chest by folds of skin, attached at the middle of the humerus, giving the arms, when the skin was stretched, somewhat of the appearance of bat's wings. There was also a thick fold of skin at the fold of each elbow, preventing extension; but the joint could be moved laterally. The hands were flexed at a very acute angle, on the inner part of the forearm, and the wrists were in contact with the lower jaw. Extension of the thighs on the pelvis, and of the legs on the thighs, was limited by cutaneous folds. Both hands and feet were in a state of varus. The penis was rudimentary, and in a condition of hypospadias. The testes had not descended.

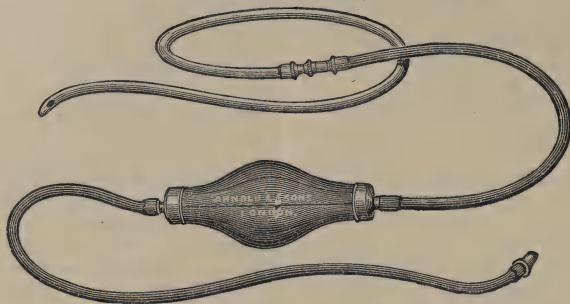
The second foetus had the head bent down on the right shoulder. The neck was very short and thick—more batrachian than in the other foetus. The right shoulder was scarcely a finger-breadth from the mastoid process. There was left dorsal scoliosis. The right humerus was articulated normally with the scapula; the left was fastened in its upper third to the thorax by a fold of skin. The bands of the elbows were normal. The forearms were somewhat malformed; the right radiocarpal joint was bent at an acute angle. The palm of the right hand lay in contact with the anterior surface

of the forearm; the ring and little fingers were bent, and could not be extended. The left upper limb presented the same relations of the forearm to the hand; the fingers were at a right angle with the carpus, and the phalanges were bent on the palm; the thumb was normal. The thighs were bent at an obtuse angle on the pelvis, and could not be extended in consequence of the deficiency of the integuments. The relations of the head of the femur to the ace-

tabulum were normal on both sides. The right leg was bent at a right angle on the thigh; and the left at an obtuse angle. The right foot was joined to the leg at a very acute angle, with the sole turned forward. The left foot had the dorsum turned forwards, with the outer edge downwards, and the toes backwards and inwards. The scrotum was wanting, and the penis rudimentary; the testes could not be felt in the inguinal canal. A. HENRY, M.D.

NEW INVENTIONS.

AN IMPROVED SYPHON STOMACH-PUMP.



Mr. L. H. Tosswill of Exeter has devised an apparatus which he thus describes.

For some time past, I have felt convinced that the stomach-pump now in use is far from a perfect apparatus. It is costly, not particularly portable, and, above all, a dangerous instrument, cases being known where the stomach-tube has been pushed through the coats of the stomach or œsophagus. I wish, therefore, to bring before the notice of the profession a stomach-pump on a novel principle, which has been made for me by Messrs. Arnold and Sons, the well known instrument-makers in West Smithfield. The advantages I claim for my instrument are freedom from danger, cheapness, and increased portability. It can be easily carried in the coat pocket, its cost does not exceed 15s., and it is almost impossible to perforate the coats of the stomach or œsophagus by means of it, be the operator ever so clumsy or ignorant. The instrument consists of an India-rubber tube, about half an inch in diameter and four feet in length, provided with a ball of the same material, which is three or four inches in diameter, and situated about eighteen inches from one end of it. In fact, it is almost a *fac simile* of one of Higginson's enema syringes, but without a valve. To the shorter length of tube the stomach-tube proper is attached by a simple contrivance. This stomach-tube is nothing more or less than an enlarged Thompson's India-rubber catheter, with two large oval holes situated near the extremity. Let us suppose the instrument to be used in a case of poisoning, where it is desired to wash out the stomach as speedily as possible. The patient being seated in a chair, or reclining on a couch, the stomach-tube is oiled and then passed back in the mouth in the usual way, until it has reached the upper part of the pharynx. Its passage down the œsophagus, as in the case of Thompson's catheter in the urethra, is effected by twisting it round and round in the hand until it has reached the stomach. I need scarcely point out how much less pain this soft flexible tube

must cause than the hard somewhat inelastic tube generally used. The rest of the instrument is now adjusted to the stomach-tube, the work of a second, and then, a jug of water being obtained, the end of the tube beyond the ball is introduced into it. The operator, with one hand pinching the India-rubber tube somewhere between the ball and the patient's mouth, with the other compresses the elastic ball, and thus forces out some of the air contained in it, which bubbles up through the water in the jug. When this has been repeated two or three times, all the air is forced out, and the ball becomes filled with water. If the jug be now raised a foot or two above the patient's stomach, and the pinching of the tube be discontinued, the instrument acts as once as a syphon, and the water flows from the jug in a continuous stream into the patient's stomach. When enough has been introduced, the tube is pinched somewhere between the ball and the patient's mouth, and the flow of water into the patient's stomach is at once stopped, the water being retained in the ball by the atmospheric pressure. If the end of the tube be now taken out of the jug and put into a basin, below the level of the patient's stomach, upon the pinching of the tube being discontinued, the contents of the stomach will at once flow out into the basin in a continuous stream; the instrument acting, of course, again as a syphon, only in the reverse way to that previously. When it is considered that the stomach is nearly empty, the tube is pinched between the ball and the basin, the end of the tube put back into the jug, and the whole thing repeated over again.

Two deaths from cholera occurred in Utrecht, and one in Gouda, in the week ending February 14.

The *Correio Medico de Lisboa* says that for some time the San José hospital has been overcrowded, and that erysipelas, diarrhoea, and other manifestations of septiciæmia, have been and still are prevalent.

ELECTRO-THERAPEUTICS.

BYRNE ON THE ELECTRIC CAUTERY IN UTERINE SURGERY.—Dr. J. Byrne, of New York, in his recent work on this subject, submits the following aphorisms regarding the operative procedures in use.

1. In all cases of induration, destructive ulceration, and outgrowths of the cervix uteri of a malignant nature, or believed to be so, and therefore warranting excision by galvano-cautery or other means, such operations should never be limited to the apparent line of demarcation between sound and healthy tissue, but must include the whole vaginal cervix at least, and even more if need be. 2. When the shape of a part to be excised is such that a loop can not be made to embrace it, a circular furrow for the reception of the wire may first be made by the cautery knife. 3. The wire loop, knife, or other instrument should never be brought to a white heat when passing through superficial tissues or cellular growths. 4. Traction on the part to be excised should be carefully avoided until the wire has passed well into the submucous structures. 5. The contraction of the loop should in all cases be very slow and gradual, *yet interrupted*, so as to insure a thorough cauterisation of each stratum as passed through. 6. Toward the close of such operations, and as the circle of wire becomes very small, let the amount of electricity be proportionately lessened. 7. Apply the knife to the spot intended to be cut *before heating*, and, if possible, be always provided with a duplicate of this little instrument. 8. Shun the use of persulphate of iron as a utero-vaginal styptic dressing when possible; and, should any such agent be needed, substitute solutions of alum or acetic acid, dilute or strong, as circumstances may warrant.

REVIEW.

Osservazioni Anatomiche per servire allo Studio della Circolazione venosa delle Estremità inferiori. [Anatomical Details to assist in the study of the Venous Circulation in the Lower Limbs.]—A memoir read to the Academy of Medicine at Turin and extracted from their Journal. By DR. CARLO GIACOMINI, &c.

The first part of this memoir treats of the superficial veins, and chiefly of the external or short saphenous.

The author first enumerates the various, more or less abnormal methods in which this vein may terminate. These he arranges in the following order.

1. There may be an anastomotic branch communicating upwards with the internal or long saphenous vein. He gives numerous ways in which this anastomosis may occur, and he says that some such communication is so frequent, that he regards the giving off of a branch from the external saphenous just previous to its termination in the popliteal, to form an anastomosis with the long saphenous, not as an anomaly (as Cruveilhier describes it) but as a normal state. This branch, however, may run in one of several different courses, forming sometimes also a communication with the articular veins.

2. The second is a branch which runs along with the small sciatic nerve on the back of the thigh, and joins the external saphenous, or connects the latter

with the before-mentioned anastomotic branch to the internal saphenous. This branch may sometimes be much enlarged, and may form an anastomosis with the short saphenous and the gluteal or sciatic veins. These superior anastomoses in some cases are so large that the portion of the short saphenous which opens into the popliteal is very small or even wanting altogether, so that the external opens into the internal saphenous only.

3. There are other and more numerous anastomoses in the leg between the two saphenous veins; and other cases in which the short saphenous goes entirely into the internal saphenous vein. In these instances the vein is not truly subcutaneous, but is contained between two layers of the deep fascia.

4. Other anastomosing branches proceed to the deep veins, the most common of which communicates between one of the perforating veins and the above mentioned anastomosing branch to the long saphenous.

5. Another anastomosing branch runs from the external saphenous, through the substance of the short head of the biceps to the profunda femoris vein, and finally—

6. The whole external saphenous vein, instead of merely an anastomosing branch, may pass into one of the perforating.

When the external saphenous vein has pierced the aponeurosis of the popliteal space, it sometimes runs upwards for some distance before it unites with the popliteal vein, receiving in its course some of the branches which generally open into that vein; and about once in three times the vein, instead of passing between the two great divisions of the sciatic nerve to open into the popliteal, runs at the inner side of the internal popliteal nerve.

A table is added of the results of fifty-one dissections—the numbers are hardly worth quoting—the most striking fact is that in only three cases out of the fifty-one did the short saphenous terminate entirely in the popliteal without any other anastomosis.

The second part of the memoir contains an account of thirteen dissections in which (the arteries being normal) abnormalities were found in the popliteal and femoral veins. The popliteal vein was frequently found to be double. It terminated sometimes in the profunda femoris vein, leaving the superficial femoral artery without any companion vein, or bifurcated into the superficial and deep femoral veins. At other times a *vas aberrans* united the deep to the superficial femoral vein, or other anomalous communications were found between various deep veins of the limb. The author also lays stress on the frequent occurrence of 'venous islets' in the deep veins of the lower limb—formed by the division and subsequent reunion of a trunk vein.

The third part consists of some observations on the lower animals.

In summing up his observations in the fourth and concluding portion of his treatise, the author first notices the fact that the great arteries of the limb may in some cases be found surrounded by a tight network of interlacing veins, while in others they may have no accompanying vein at all.

But the part of his work on which he lays most stress is the study which he has made of the anastomoses between the superficial and deep veins. These branches he classifies into inter- and intra-muscular, and in these he says the valves are always very numerous, and so directed as to favour the passage of the blood from the superficial into the deep veins,

but to oppose all reflux from the deep into the superficial. He refers to other authors viz. Houzé d'Aulnoit, Verneuil, and Le Dentu, who have made the same observation.

From this consideration he is led to oppose the views of those who (with Mr. Gay*) look upon the superficial veins as a kind of supplement or diverticulum to the deep venous system. He says, on the contrary, that in the normal condition of the veins—*i.e.* when the valves of the anastomosing system (inter- and intra-muscular) between the deep and superficial veins are efficient, it is impossible for the blood to flow back from the deep veins into the saphenous or their branches, and equally impossible to inject the saphenous veins from one of the deep, *e.g.*, the posterior tibial, though the deep system can always be injected from the radicles of the saphenous. When the superficial veins become varicose, the cause, according to him, will always be found in varicosity of the anastomosing system of veins, and consequent insufficiency of their valves—whereby the column of blood is thrown back from the deep veins on to the saphenous and their branches, which, not being supported by muscles or fasciæ, easily yield.

In support of this he refers to numerous dissections, in one of which he found the secondary subcutaneous veins varicose, but the saphenous veins were not so, and in this instance he discovered that the anastomosing system was in direct connexion with the secondary veins, and not with the saphenous trunks.

He believes, therefore, that the subcutaneous veins are not primarily affected with varix, but that this condition in them is secondary to a varicose state of the deep veins, though how that condition is produced in the deeper veins he is unable to say.

T. HOLMES.

MISCELLANY.

COUNT BASILIO STAMPA, who died lately in Milan, has left, after providing for his family and servants, 400*l.* to the hospital at Desio, and 1,200*l.* each to the hospitals at Veprio and Saronno.

TRICHINOSIS.—At the town of Forst, in Germany, twenty-two persons have been attacked with trichinosis through eating the flesh of a pig killed by an hotel keeper. The cook and the hotel keeper have both died; the body of the former was found full of living trichinæ. Several other persons were, on February 24, dangerously ill, and new cases were coming under notice.

THE BRITISH PHARMACOPEIA.—We have authority to state that a new edition of this valuable official work will be issued next week. An important 'addendum' will contain formulæ for new remedies which have been introduced into practice since the last edition was published. The main labour of its production has fallen upon Dr. Quain, F.R.S., and Professor Redwood.

MEDICAL APPOINTMENTS.—Among the more important medical appointments of the week are those of Mr. Field to St. Mark's Hospital, and Dr. Galabin to Guy's and the Children's Hospitals. Dr. Galabin was a Fellow of Trinity College, and was, we believe, second classic and a Smith's prizeman. We hear also that Mr. Harding, the senior wrangler of last year, is studying physiology in Dr. Foster's laboratory. It is satisfactory to find that medical studies are once more attracting the best learned minds of the University. Law and the Church have too long enjoyed a monopoly of wranglers and first-class men in classics.

* *Lancet*, vol. ii. 1871, 629.

THE GOVERNMENT AND THE MEDICAL COUNCIL.—The new Government, following out arrangements of their predecessors on the point of completion, have offered to the General Medical Council the premises in Oxford Street formerly occupied by the College of Chemistry. They are offered at a very moderate rent. Mr. Lowe, however, had admitted the right of the Council to premises free of rent.

PROFESSIONAL WOMEN.—Mrs. Garrett Anderson, M.D., has been proposed as a member of the Obstetrical Society of London by Dr. Tilt, president of the Society, Dr. Priestley, Dr. Barnes, Dr. Playfair, Dr. Braxton Hicks, F.R.S., Dr. Oldham, Dr. G. Hewitt, and other members of the obstetric branch of the profession. This has raised the question of the right of women, although duly qualified, to be elected members of that Society, and the question will be discussed this evening at a general meeting.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.—At the anniversary meeting of this society, held on Monday, March 2, the following officers, and other members of Council were elected for the year 1874-1875. President: Charles J. B. Williams, M.D., F.R.S. Vice-Presidents: E. H. Sieveking, M.D.; Sir W. W. Gull, Bart., M.D., D.C.L., F.R.S.; W. White Cooper; Luther Holden. Treasurers: W. Wegg, M.D.; J. Birkett. Secretaries: E. Symes Thompson, M.D.; J. Cooper Forster. Librarians: F. Sibson, M.D., F.R.S.; T. Holmes. Other Members of Council: J. B. Carill, M.D.; W. H. Dickinson, M.D.; C. J. Hare, M.D.; W. O. Priestley, M.D.; H. Weber, M.D.; W. Adams; T. Bryant; G. W. Calender, F.R.S.; John Gay; J. F. Streatfield.

CHEAP FOOD.—We are very glad to see that the results of the large importations of Australian meat into this country during the last year appear to have been commercially successful. Owing to the increased value of sheep from the high price of wool, there was a smaller importation of preserved meat from Victoria last year than in the year before, and many large orders received by Tallerman's Australian Meat Agency could not be executed. During the year 13,061 tons of animal food have been added to our home resources from the Australian Colonies, and have been sold at a value of 733,848*l.* The Continental demand is increasing. It is a curious fact that, while the consumption of the meat by the poorer classes has decreased, the better educated classes are creating an extended and permanent demand for these meats through the higher class of dealers. The Australian Meat Agency declares a dividend of 10 per cent per annum, and the prospect of commercial stability of this important branch of trade is thus decidedly increasing.

NOTICE.

THE LONDON MEDICAL RECORD is published every Wednesday morning, and may be ordered direct from the Publishers. Annual Subscription, 1*rs.* 4*d.*; free by post, 1*rs.* 6*d.*

The First Volume, containing upwards of Two Thousand Articles abstracted and compiled by a staff of Fifty Hospital Surgeons and Physicians, is now ready, price 1*rs.* 6*d.* Cloth Cases for binding the Numbers for the year 1873 are also ready, price 1*s.* 6*d.* each.

Foreign Books for review in this Journal may be sent addressed to the Editor, care of Messrs. DULAU & Co., London; and through their Agents:—Paris: Mr. G. BOS-SANGE, Rue Quatre-Septembre—Leipzig: Mr. K. F. KOEHLER—Florence: Mr. E. LOESCHER—Brussels: Mr. C. MUQUARDT.

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Advertisements should be sent to the Office, 15 Waterloo Place, S. W., before Twelve o'clock on Tuesday morning.

The London Medical Record.

WEDNESDAY, MARCH 11, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

DAY ON THE CHEMICAL PROPERTIES AND PHYSIOLOGICAL ACTION OF FAT.

In an interesting paper read before the Medical Society of Victoria (*Australian Medical Journal* November, 1873), Dr. John Day submitted for consideration the results of a series of experiments on which he had recently been engaged, with a view to ascertain, if possible, the nature of the change produced in fats by exposure to the atmosphere. He said :

'It is well known that all fats and fatty oils, whether derived from the animal or the vegetable kingdom, possess the property, more or less, of absorbing oxygen from the atmosphere, and that, when long exposed to its influence, some become rancid, and others are converted into *drying oils*; but, beyond this, no attempt, that I am aware of, has hitherto been made to show the true nature of the change which the oxygen undergoes after it has been absorbed.

'Now, my investigations have led me to believe that it is invariably converted into peroxide of hydrogen—a substance possessed of very remarkable properties, particularly when looked at from a physiological point of view.

'It has been stated by Professor Roscoe, one of our most eminent modern authorities on chemistry, that peroxide of hydrogen, which he calls hydrogen di-oxide, does not occur in nature. On this point I venture to express a difference of opinion, and would even go so far as to say that spontaneously formed peroxide of hydrogen exists in a very large number of substances, many of which are articles of everyday use. For instance, it may often be found, and sometimes in considerable quantities, in kerosene, gasoline, benzine, oil of turpentine, and many kinds of perfumery. With these, however, we have, on the present occasion, no special concern.

'It is its universal presence in all fats and fatty oils, with the exception of the fats of recently killed animals, its absence from which I believe I can explain, that I have undertaken to prove this evening, and I will at once proceed with the attempt.

'On the table before us are various unselected specimens of the following substances belonging to this class of hydrocarbons, in all of which I have very clearly detected the presence of peroxide of hydrogen; viz., the fat of beef, mutton, and pork, beef-marrow, bone-grease, beef and mutton tallow, fresh butter, prepared lard, neatsfoot oil, cocoa-nut oil, palm oil, cacao-butter, almond, castor, olive, and linseed oils, and stearine.

'There are several tests for the presence of per-

oxide of hydrogen; but the two best for our purpose are the iodide of potassium, and the guaiacum and blood tests.

'The iodide of potassium test is open to the objection that it gives the same reaction with ozone as it does with peroxide of hydrogen, which, according to Schönbein, is antozone in loose combination with water. This very objection, however, to its general value as a test for peroxide of hydrogen rather assists us on the present occasion, for it shows us that the oxygen which has been absorbed by these substances, must have undergone a change and acquired increased oxidising powers, otherwise it would not be capable, as it invariably is, of liberating iodine from iodide of potassium—a property which common oxygen does not possess.

'This change in the oxidising powers of the absorbed oxygen leads us to infer that it has been converted either into ozone or peroxide of hydrogen.

'The guaiacum and blood-test, which is perfectly reliable, will carry us a step further, and teach us that it is peroxide of hydrogen, and not ozone, which has been formed; for one of the characteristic properties of ozone is its power of oxidising and turning blue the resin of guaiacum, a property which, as I will presently show you, peroxide of hydrogen only possesses under very peculiar circumstances, viz. when it is brought into contact with either blood or pus. It then acquires greatly increased oxidising powers, and gives the reactions of ozone.

'As the reactions from both these tests become more marked after the lapse of a little time, I have already applied them to each of the specimens before you, so that you may see them to the best advantage. I will also repeat the experiments before you on some of those substances in which the presence of peroxide of hydrogen appears to me to be the most interesting, such as cod-liver oil, olive oil, fresh butter, beef and mutton fats, lard, cocoa-nut oil, and palm oil.

'To gain satisfactory results, it is best to perform the experiments on white blotting-paper, taking care that it does not, in itself, contain anything which could act on the guaiacum-resin and turn it blue.

'The tincture of guaiacum used for the purpose must be a simple solution of the resin in alcohol, not the ammoniated tincture of the *British Pharmacopæia*.

'A watery solution of dried blood gives the quickest reaction; but fresh undiluted blood will also give it very readily.

'The blood should be applied to the paper first; then the fat or fatty oil; and lastly the tincture of guaiacum.

'The greatest difficulty I have had to contend against in these investigations has been to find some satisfactory mode of accounting for the absence of peroxide of hydrogen in the fat of recently killed animals; but I think I am now able to explain it.

'You have already seen that peroxide of hydrogen is rapidly changed and converted into another and more active form of oxygen in the presence of blood. Now, when we consider that in the living body the fats are in a fluid or nearly fluid state, and freely brought under the influence of the blood-corpuscles, the colouring matter of which is supposed to be chiefly instrumental in effecting this change, it is not difficult to arrive at a tolerably plausible hypothesis regarding the absence of peroxide of hydrogen, in the fats of recently killed animals.

'The following experiment, I think, favours the view that fats are incessantly generating peroxide of hydrogen, and that the only circumstances under

which it does not accumulate in them are those in which blood, or some other substance capable of destroying it, is present. On October 19th, I put the fat of some beef, which was killed on the 10th, into the oven at a temperature of 100° Fahr., as nearly as I could manage it, and left it there for four hours; at the expiration of that time it had become pretty strongly charged with peroxide of hydrogen, although before it was put into the oven it did not show a trace of it.

'My mode of accounting for this change is as follows. The fat was rendered fluid by the agency of heat, and this condition brought the colouring matter of the blood and the peroxide of hydrogen of the fat into closer contact, and thus led to their mutual destruction; and this went on until the whole of the colouring matter of the blood had been destroyed. The peroxide of hydrogen then began to accumulate.

'On applying the guaiacum test for blood to the fat before it was placed in the oven, I got the characteristic blue reaction very freely; but after it was taken out and allowed to cool, the test, although one of extreme delicacy, gave no evidence whatever of the presence of blood.

'It has been suggested to me by a scientific friend that, if it be true that so many substances in common use contain peroxide of hydrogen, it might rather detract from the value of the guaiacum process for the detection of blood in medico-legal cases; a test with which my name has become associated. But this really forms no valid objection to its use, from the simple fact that blood falling on cloth or any other article containing peroxide of hydrogen would very quickly decompose it.

'Now, although I feel tolerably confident in the correctness of my views regarding the chemical changes which oxygen undergoes after its absorption by fats, I am free to confess that the physiological views I have undertaken to bring before you are of a purely speculative character. Nevertheless, if we see reason to believe that fats in the living body produce the same changes in the inspired oxygen that fats out of the body produce in atmospheric oxygen, it will offer us sufficient encouragement to pursue these inquiries further; and I do not think I claim too much in saying that they may lead to valuable results.

'My present belief is, that fats, either in or out of the body, are incessantly absorbing oxygen and converting it into peroxide of hydrogen; that in the body they produce the first change in the inspired oxygen, and convert it into peroxide of hydrogen, ready for conversion, through the agency of the blood-corpuscles, into some still more active form of oxygen—probably ozone.

'In conclusion, I will briefly mention those points in the chemical properties of peroxide of hydrogen, which are possessed of the greatest physiological interest.

'1. It is a powerful oxidising substance, and is chiefly characterised by the ease with which it parts with half its oxygen. Its oxidising powers are much greater than those of common oxygen, but less than those of ozone, into which it is supposed to be converted in the presence of blood.

'2 It is chemically indifferent to albumen, and may be kept for a long time in contact with it, without undergoing change; in this respect it differs widely from ozone, which acts energetically on albuminoid substances, particularly when they are beginning to decay.

'3. It is destroyed by heat.

'Now, assuming that peroxide of hydrogen is a normal constituent of fat, this last-named property may help to explain why persons suffering from rheumatic fever and other diseases in which the temperature of the body rises to 107° Fahr. invariably die; for we are told by writers on chemistry, that peroxide of hydrogen begins to decompose at 100° Fahr., and that it decomposes with great rapidity at higher temperatures.'

CZERNY ON LOCAL OSTEOMALACIA OF THE LEG.*

Dr. Czerny of Freiburg relates a case of this uncommon affection, and makes some interesting remarks which are worthy of a somewhat full report. The paper is accompanied by a woodcut, illustrating the deformity, which at first sight looks like a badly healed fracture.

S. Rafael, aged twenty-two, served as a soldier during the recent war, and made the forced march which preceded the siege of Belfort. At that time he felt and complained of shooting pains at the inner side of the left ankle, which rendered necessary a short stay in the hospital. He soon became better and continued his service. After the war, he worked as a mechanic. He came to the Clinic on March 12, 1872. There was some swelling at the inner side of the ankle, which was not sensitive to pressure. He complained that, after long standing, there was great pains in both ankles. The affected foot was somewhat flatter than the other, which made Dr. Czerny think it might probably be a case of commencing talipes valgus. Rest and moist applications soon relieved the symptoms, and the patient was discharged on March 27 with a Stromeier's shoe.

Some weeks later he returned to the hospital, and complained that the improvement was only temporary, that the pains were now in the lower part of the shin. There were slight œdema and pain on pressure, and he could not use his foot for any time, so that on May 6 he was admitted into the Clinic. At this time there was a slight bending of the tibia, which was thickened at the anterior edge. Dr. Czerny then thought it was a case of chronic osteitis, and applied a gypsum bandage, leaving an opening over the seat of pain, where iodine was applied. The pains disappeared after some weeks; and, as the patient wished to be discharged, he was dismissed with an isinglass bandage.

During his stay in hospital the deformity did not increase, but afterwards the patient did not have his bandage renewed, and through constant use of the leg it became considerably bent. On February 8, 1873, he was re-admitted. The left tibia at its lower third was bent at an obtuse angle, so that the tendo Achillis was strongly arched inwards. At the seat of the greatest bending, both bones appeared thickened. On attempting gently to bend the bones with the hands no pain was produced, but there was no yielding. The muscles of the calf were rather weaker than those of the opposite side. The foot appeared as if slightly affected with talipes equinovaglus.

The man could walk with the help of a stick, but was soon tired, and complained of pain in the ankle after long use, which Dr. Czerny thought to be probably due to stretching of the ligaments. In other

* *Wiener Med. Wochenschrift*, no. 39, 1873.

respects the man appeared in good health, and there was no affection of the other bones.

On July 12, 1873, the condition had not changed. In case the functional disturbance should increase, Dr. Czerny suggested forcible straightening of the bones with, or without, osteotomy; but the patient was loth to acquiesce.

Cases of this kind are so rare, that it is worth while to quote those which one can find scattered in medical literature. Scoutetten (*Gazette Médicale de Paris*, 1841, p. 428) reports the case of a tailor, aged twenty-five, who was otherwise in good health, but who suffered from severe pains in the lower portion of one leg, which was followed by gradual bending of the part, so that finally it gave way or cracked at a right angle. The foot was in the position of extreme valgus. The bones firmly united, so that he became a postman, and walked eight or ten miles daily. The ankle-joint was healthy, and the deformity affected the bones just above the joint. Scoutetten ascribes this deformity to a partial osteomalacia, which developed itself without any known cause, and considered the case unique.

Solly (*Medico-Chirurgical Transactions*, vol. xxvii., 1844) describes two cases which, he concludes, were due to local osteomalacia, and which appeared to belong to this category. In a man aged thirty, one leg gradually became bent, the integuments thickened and ulcerated, and the general health was disturbed so much that amputation was performed. The tibia and fibula showed very loose lamellæ, which were very thin and fragile, filled with a soft red mass.

Another man, aged thirty, suffered manifestly from softening of one thigh, which was fractured from a very slight cause. The bone was much thickened and bent. An apparatus was procured for him, by means of which the weight on this side was transferred from the thigh to the pelvis, and thus he was enabled to walk and to work.

Mosetig (*Wiener Medizinische Presse*, 1868, no. 4, p. 89), describes, under the name of osteo-haliteresis, a case of local softening of the bones of the leg. The patient, aged twenty-one, had the year before, during dancing, suddenly felt a very violent pain, which, however, did not prevent him from continuing to dance, after a short rest. Since that time he had occasionally felt slight pains, and observed, for the first time, about Christmas, 1866, that his leg commenced to bend a little above the malleoli. The curvature increased constantly, and at last rendered walking impossible, so that the patient entered the Clinic in July. The direction of the curve was outward, and corresponded to an angle of 130 degrees; the foot was in the valgus position. The bones were not enlarged at the seat of curvature. They were smooth, and there was no solution of continuity. By daily cautious bending and the application of wooden splints, the limb was quite straight in four weeks. After this the patient was further treated with splints, &c., until the bone became perfectly firm. R. Volkmann adds the following remark. The assumption of the author that in such cases of gradual curvature of the bones we constantly find a haliteresis, *i.e.* a partial decalcification while the cartilage remains normal, rests on an error. Much more frequently there shows itself, as so-called rarefying osteitis, an increase of the medullary space, and in necrosis (in which Mosetig saw curvatures twice), there was usually an internal fracture.

Weinlechner (*Wochenschrift der Gesellschaft der*

Aerzte in Wien, vol. 25, p. 21,) saw two cases. A strong butcher, aged between twenty and thirty, had a curvature of the right leg and pain, which prevented him from walking. No injury had preceded it. The bone exfoliated (*federte*). A labourer, aged nineteen, who had been ill for nine months, had both legs bent, the one with the apex of the angle outwards, the other inwards. Here also pain existed. The bone exfoliated. Splints and good nourishment formed the therapeutics. On dismissal, both legs were still pliable.

The cases of Scoutetten, Mosetig, and Weinlechner are extremely like Dr. Czerny's. In all six patients, who were strong men of the labouring class, and were of that age in which the growth of the length of the skeleton ceases, a curvature of the legs above the ankle was gradually developed, and was accompanied by pain, which did not, however, prevent the use of the limb. The limbs were at first pliable, but in some cases became unpliant and hard.

We must here suppose a sclerosis of the bones, if we take into consideration the perfect recovery of the functions in such unfavourable mechanical conditions as in the case of Scoutetten. We have no certain data on the cause of this peculiar affection, if we are not to consider as such the much maligned cold-catching which occurs commonly in dancing or in long marches in deep snow (Dr. Czerny's case). Mosetig assumes, in his case, an injury. In none of the patients is a dyscrasia or a hereditary predisposition mentioned. Solly's first case seems also to belong to this class, but is not very clear (as given in Hodgson's short report) how long the disease had lasted, whether the disease of the bone had gone on to the formation of pus and ulceration of skin, or whether an ulcer of the skin had been developed at the place of curvature and independent of it, which became so burdensome to the patient that he submitted to amputation. It is probable that the patient could not use his leg for walking, otherwise he would not have so readily submitted to amputation. Unfortunately, we cannot on this account learn anything from this meagre anatomical result, which, so far as Dr. Czerny knows, is the only one which has been examined; and he cannot find out whether Volkmann was induced by other anatomical researches to communicate his remarks concerning this disease.

Solly's second case must rather be ascribed to a senile osteoporosis, and cannot well be explained without an anatomical examination. Cases of local osteomalacia of individual bones, as of the sternum, cranial bones, &c., which always ending fatally, cannot have anything in common with this disease. The fact of the softening frequently end in sclerosis might make one incline to the diagnosis of delayed rachitis, but the affection in these cases was a purely local one, and there was more inflammation than in rickets. The name osteo-haliteresis only explains a part of the diseased process; as all the characters of osteitis ending with sclerosis were present, the term osteitis deformans seems more applicable.

Dr. Czerny thinks that, when attention has been sufficiently drawn to this disease, cases will be more often recognised. Syphilis may be a cause of bending of bones; and shortly after this case one due to syphilis came under Dr. Czerny's care, and was cured by iodide of potassium, splints, and rest. Syphilis may be suspected in cases of osteitis deformans; and iodide of potassium should be tried.

[A woman, aged fifty, but looking older, is now among our out-patients, and came complaining that

her legs were bending. One—the right—had commenced to do so three years ago, and the left only during the last fourteen months. Both tibiae were considerably curved forwards, and at first sight we were inclined to regard the case as an old standing one, *i.e.*, that she had been the subject of rickets when a child, and that her history was not reliable; but at a subsequent visit she was questioned very closely, and her daughter said that her mother's legs had only commenced to curve during the last three years. This induced us to regard the case as one of so-called senile rickets, and as several features resembled those of the cases of Dr. Czerny, we have thought it well to append a brief notice of it.—*Rep.*]

H. A. REEVES.

PARKES ON THE EFFECTS OF ALCOHOL.*

Dr. Parkes has made a large number of experiments on a strong healthy soldier, T. R., aged twenty-five, height 5 ft. 8½ in., weight (naked) 67·46 kilogrammes, or 148 lbs.

The course of the experiments was as follows. His breakfast was taken at 6·30, was finished every day by 7 A.M.; he took for breakfast eight ounces of bread, ½ ounce of butter, and 17 fluid ounces of tea with sugar, and with three ounces of milk. Immediately after breakfast he went to bed again, and did not get out of the recumbent position for any purpose until 2 o'clock. He then dined on 12 ounces of beef-steak, 4 ounces of bread, and 8 ounces of water.

After dinner he took exercise and smoked, had tea (same food as at breakfast) at 6, and a glass of water at 9 P.M., when he went to bed. He took daily precisely the same diet and quantity of water.

Thermometers (tested for accuracy and exactly corresponding) were placed in the axilla and rectum at 6 o'clock, and, except at breakfast, they were removed only for the purpose of being read at first every thirty, and then every fifteen minutes, and were at once replaced, until 2 o'clock; after which time the temperatures were only taken every two hours.

After several days' preliminary examination (during which time he took no alcohol) the experiments were commenced and carried on for six days without alcohol; then during five days undiluted brandy containing 50 per cent. of absolute alcohol was given once daily, *viz.* at 11 A.M., four hours after breakfast.

On the first day one fluid ounce of brandy (= half an ounce of alcohol) was given; on the second day two ounces, on the third day four ounces, on the fourth day six ounces (= three ounces of alcohol), and on the fifth day also six ounces.

The following were the conclusions arrived at.

1. The change in the temperature of the axilla and rectum produced by brandy was very slight. It was never increased, but was probably slightly lowered; but the result is not quite certain; and if any lowering occurred, it did not exceed 0·35° Fahr., and may not have been more than 0·07° Fahr.

2. The pulse, which was lessened in number by long rest in a recumbent position, was increased in frequency by a single dose of brandy for three hours, but subsequently fell in number, so that the daily work done by the heart was the same on the water

and the brandy days. What occurred was accelerated work for a certain time, and compensation for this by lessened work afterwards. That brandy increases the force as well as the number of the pulse, was shown by sphygmographic tracings in the papers already communicated to the Royal Society; and in order not to disturb the state of rest, no sphygmographic observations were taken in this case.

3. The respirations appeared to be slightly lessened by brandy; but the evidence is not very strong.

The author made another series of experiments to determine the effect of alcohol after sixteen hours fasting.

The following conclusions may be drawn from the observations formerly recorded (*Proceedings of the Royal Society*, nos. 120, 123, and 136), and from those now laid before the Royal Society.

1. When alcohol in dietetic doses (= 2 fluid ounces, or 57 cubic centimetres, of absolute alcohol) was given to a healthy man fasting and at rest, a decided though slight lowering of bodily temperature (as judged of by the heat of the rectum) was caused. The amount of lowering was under half a degree of Fahrenheit; and sometimes even this amount was not perceptible, being probably counteracted by the opposing influence of the heat-producing changes in the body, which cause slight variations of temperature independent of food and movement. The greatest effect was produced about from one to two hours after the alcohol was taken, and the effect was evidently passing off in three hours.

2. When alcohol in dietetic doses was given to a healthy man at rest, and in whom the process of digestion was completed, and whose temperature, raised by the food, was again commencing to fall, a lessening of temperature was also proved, but its amount was not so great; it could not have been more than 0·35° Fahr., and may have been only 0·07° Fahr.

3. When alcohol was given with food with either usual or increased exercise, no effect on temperature was perceptible, even though the alcohol was given in large quantities, *viz.* from four to eight fluid ounces of absolute alcohol (114 to 227 cub. centims.) in twenty-four hours. It is to be presumed that the amount of heat generated from the food and movement concealed the effect of the alcohol, which would require a more delicate method for detection.

4. In no case did alcohol raise the temperature.

5. The effect of alcohol on the pulse was uniform in the four men experimented upon. The contractions of the heart were more frequent during complete rest, from five to ten beats per minute for some time; and when exercise was taken the increase was greater. The mean pulse of the twenty-four hours was, however, not increased unless the amount of alcohol was large and repeated. In other words, the heart's beats were less frequent than natural when the effect of the alcohol had passed off. The pulse became both fuller and softer to the touch; and this relaxation of the radial artery was shown also by the sphygmograph. That the smaller vessels were relaxed was shown by the redness of the surface and by the evident ease with which the blood traversed the capillaries, as shown by the sphygmographic tracings.

6. The respirations were not increased in number by alcohol; they were indeed lessened, and were deeper in some of the experiments; but the effect was not very marked.

* Royal Society, Feb. 12.—'On the Influence of Ethyl Alcohol on the Bodily Temperature, the Pulse, and the Respirations of a Healthy Man.' By E. A. Parkes, M.D., F.R.S., Professor of Hygiene, Army Medical School.

ANATOMY AND PHYSIOLOGY.

PHYSIOLOGICAL RESEARCHES ON DIGESTION AND ABSORPTION IN THE HUMAN LARGE INTESTINE. BY V. CZERNY AND J. LATSCHENBERGER, OF FREIBURG.*

The opinions of authors† who have investigated the functions of the intestinal canal in nutrition are much divided on the two chief questions—the digestive action of the intestinal juice on the one hand, and the absorption of the intestinal contents on the other. The older experimenters, Leuret and Lasaigne, Gmelin, Eberle, and Steinhäuser, whose results indeed, on account of the insufficiency of the methods of research, have not very much weight, came to the conclusion that the intestinal juice possesses a digestive power. Blondlot first impugned this positive result, and was soon supported by the exact researches of Frerichs. At a later period, Zander, working under the direction of Bidder and

* Translated from Virchow's *Archiv*, vol. lix. part 2.

† The authors give the following references to the literature of this subject:—*Recherches physiques et chimiques pour servir à l'histoire de la Digestion*. Par MM. Leuret et Lasaigne. Paris: 1825.—Die Verdauung, nach Versuchen von Tiedemann und Gmelin. 1826.—*Physiologie der Verdauung nach Versuchen auf natürlichen und künstlichen Wege*, von Dr. J. A. Eberle. Würzburg: 1838.—*Experimenta nonnulla de Sensibilitate et Functione Intestini crassi*. Dissertatio inauguralis. Steinhäuser. Lipsiæ: 1841.—Blondlot, *Traité analytique de la digestion considérée particulièrement dans l'homme et dans les animaux vertébrés*.—*Handwörterbuch der Physiologie*, von Dr. C. Wagner. band iii. Braunschweig: 1846.—Robert Zander, *De Succo enterico*. Dissertatio inauguralis. Dorpat: 1850.—Die Verdauungssäfte und der Stoffwechsel, von Dr. F. Bidder und Dr. C. Schmidt. Mitau und Leipzig: 1862.—Busch, *Beobachtungen an einer Frau mit Darmfistel*. (Virchow's *Archiv*, Band xiv. 1858.)—Kölliker and H. Müller: *Erster und zweiter Bericht über das Physiologischen Institut in Würzburg*.—Dr. W. Braune: *Ein Fall von Anus præternaturalis mit Beiträgen zur Physiologie der Verdauung*. (Virchow's *Archiv*, Band xix. 1860.)—Dr. O. Funke: *Lehrbuch der Physiologie*.—Thiry: *Ueber eine neue Methode den Dünndarm zu isoliren*. (*Sitzungsberichte der mathem.-naturwiss. Klasse der Kaiserlichen Academie der Wissenschaften*, Band ii. Abtheilung 1, Wien, 1865.—Schiff: *Lavori nel Laboratorio di Firenze*, 1868.—Quincke: *Archiv für Anatomie und Physiologie*, 1868.—Eichhorst: *Archiv für die Gesamte Physiologie des Menschen und der Thiere*, Jahrgang 4.—Mulder: *Die Peptone*, 1858. (*Archiv für Hollandischen Beiträge zur Natur und Heilkunde*, Band ii.)—Untersuchung über der Verdauung der Eiweisskörper, von Dr. G. Meissner. 1869. (*Zeitschrift für rationelle Medicin*, Reihe 2, Band vii., und 1869, Band viii.)—Hermann: *Ein Beiträge zum Verständniss der Verdauung und Ernährung*. Antrittsvorlesung: 1860.—E. Brücke: *Beiträge zur Lehre der Verdauung*. (*Sitzungsberichte der mathem.-naturwiss. Klasse der Akademie der Wissenschaften*, Band xxxvii. 1859.)—E. Brücke: *Ueber die Pepton-Theorie und die Aufsaugung eiweissartiger Substanzen*. (*Ibid.* band lix. 1869.—*Ueber die Verdauung der Eiweissstoffe in Künstlichem Magen und Pankreassaft*, von Dr. Diaconow aus Kasan (Medico-Chemische Untersuchungen von Hoppe-Seyler, Heft 2, 1867.)—Voit: *Sitzungsbericht der Königl. Bayerischen Akademie der Wissenschaften*, München, Dec. 5. 1868.—*Ueber die Aufsaugung im Dünn- und Dickdarm*, von Dr. Carl Voit und Dr. Jos. Bauer. (*Zeitschrift für Biologie*, Band v. Heft 4. München: 1869.—Hermann Eichhorst. (Pflüger's *Archiv*, Jahrg. iv.)—O. Schultzen: *Archiv für Anatomie*, Band xl. 1863.—Runge: *Schmidt's Jahrbücher*, Band cxi.—Leube: *Ueber die Ernährung von Kranken durch Zufuhr des Ernährungsmaterials per Anum* (Sitzung vom Dec. 5, 1871, der physik.-medizin. Societät in Erlangen, und Sitzung vom 29 Juli, 1872). *Ueber die Ernährung der Kranken vom Mastdarm aus* Leube. (*Archiv für Klinische Medicin*, Band x. Leipzig: 1872.)

Schmidt, again adopted the older view. Busch, also, who made experiments in a case of fistula of the small intestine in the human subject, obtained a digestive action on albuminates and starch. Kölliker and H. Müller defended the opinion that the intestinal juice was capable of digesting the albuminates, at least in carnivora. On the other hand, Braune and Funke found all digestive action wanting. According to Thiry, the intestinal secretion is destitute of digestive power, fibrin only being dissolved by it. Schiff asserts that other albuminates also are digested; while Quincke obtained perfectly negative results, and in many cases could not even observe that fibrin was digested. In like manner Eichhorst has not been able in his experiments to ascertain that the intestinal juice has any digestive power.

Quite as contradictory are the opinions on the manner in which nutritive materials are absorbed in the intestinal canal. Those who assume that absorption is a diffusion-process, and that soluble albumen is diffused with great difficulty and the peptones on the contrary very easily, are of opinion that albuminates are changed into peptone, absorbed as such, and then again converted into soluble albumen. This opinion, supported by Mulder, Meissner, Hermann, &c., is opposed by Brücke, who, among other important reasons, lays special stress on the fact that it is inconsistent with the fundamental principle of the animal organism, that bodies possessing slight cohesion, such as peptones, should be reconstructed into bodies of such high cohesive power, such as albumen. Brücke's view received important support from Voit and Bauer; in their experiments soluble albumen was not absorbed; but, when chloride of sodium was added, absorption set in. It rightly appeared to them improbable, that the conversion into peptone went on only under the influence of chloride of sodium. The results obtained by Voit and Bauer were completely established by Eichhorst. Thus in recent times the opinion that soluble albumen is absorbed as such, continues to gain adherents.

With regard to the absorption, there has been on every hand a change from the old opinion, that only the fatty acids and not the neutral fats are absorbed; and it is now firmly established, that fats are absorbed in the form of emulsion. This, however, holds good only for the small intestine. With regard to the large intestine, Bauer and Voit are inclined to the opinion that fat is not absorbed by the large intestine, although in their researches fat disappeared. According to Leube, fat is absorbed as such by the large intestine. Regarding the absorption of starch, it is generally assumed that it is converted into sugar before absorption.

In practical medicine, the question of absorption by the rectum is one of great importance. Partly to introduce medicines into the system, partly to increase impaired nutrition, use has for a long time been made of the absorbent power of the large intestine. Clysters, however, have been compounded in a rude and empirical manner, without any conception of the more minute processes; or, if they have been compounded on the basis of physiological views, they must fall under doubt as soon as the physiological views on absorption became changed. Without doubt, advantage is derived from clysters, which help the patient over a very transient disturbance of digestion, or which, once taken in, produce rapid stimulation, such as wine-clysters in acute conditions of debility. On the other hand, it

is still doubtful whether enemata administered by the rectum are capable of affording nutrition for a long period, although several such cases have been recorded. Thus, in a case of impermeable stricture of the œsophagus in a girl, Schultzen gave five times daily enemata of *bouillon* with egg, pepsin, and hydrochloric or lactic acid, the mixture being allowed to stand exposed to the sun until all was dissolved. Sixteen days before death, after the œsophagus was absolutely closed, the enemata were begun; in the last two days, they escaped unchanged. Runge nourished a patient by giving red wine and eggs by the rectum for fifty-four days. Leube started with the supposition that the large intestine does not digest, and introduced into the intestine nutritive material in a condition in which it was already capable of absorption. He supplemented the digestive power which was absent in the rectum by that of the pancreas, and obtained good results.

We made our researches on a man with preternatural anus (of the sigmoid flexure) in the left inguinal region. The case was distinguished from the others which have been employed for physiological investigation, in the circumstance that the rectum was completely exposed by the prolapsed loop of intestine; it could be filled from above with the articles of food on which the experiments were made, and, at any desired time, emptied *per anum*. As the rectum could be washed out from above like a retort, the discharge gave at once the amount of material absorbed. While Voit and Bauer deduced from the excreta, by an indirect process, the amount of water absorbed, we were able to directly determine the quantity of unabsorbed residue.

History of the Patient.—G. B. of H., aged 49, a strong waggoner, who was said never to have been seriously ill, had had left inguinal hernia for about five years. On February 18, 1873, the tumour in the scrotum was as large as a fist, and for some time past he had not been able to reduce it completely. He was now seized with severe pain, vomiting, and thirst, which led him to seek medical aid. As reduction could not be effected, and the symptoms of strangulation continued, herniotomy was performed on February 19, the sac being opened. The contents of the sac consisted of loops of intestine, which their size and the presence of longitudinal bands and transverse folds indicated to belong exclusively to the large intestine. One loop especially, appears to have been much distended and of a blue-grey colour. The intestines were attached to each other and to the walls of the sac by many adhesions, old and new; the attempt to break through these induced rather considerable hæmorrhage and was only partially successful; hence, the reduction of the hernia was impossible; and all that could be done was, to remove the cause of strangulation by dividing the neck of the hernial sac. After the operation, the pain and vomiting ceased; the abdomen, which had not been much distended, was soft and not painful on pressure. The patient had a quiet pulse and no fever. On February 21, sloughing took place in the prolapsed intestine and in the outer circumference of the operation-wound; and fæces were said to have escaped for the first time through the opening. The last evacuation *per anum* was reported to have taken place on February 17.

On February 22, the patient was brought into the surgical clinic. On his admission, there was seen in the left groin a swelling of the size of a fist, of a red colour, partly covered with shreds of sloughed

tissue. On making large incisions in the neighbouring skin, which was much inflamed, sanious matter containing gas, and having a fæcal odour, escaped. When the gangrenous portions of the integument had been thrown off, the swelling was recognised, by the sacculi and the longitudinal muscles, to be evidently a loop of large intestine about 25 centimètres (nearly 10 inches) in length when measured over the convexity, and surrounded at the base by the remains of the hernial sac. The intestine had been opened in three places; the descending limb at the neck of the hernia, the ascending about half way down, and there was a third opening at the greatest convexity of the loop.

On February 26, wandering erysipelas set in, and continued about twenty days; it was attended with high temperature, and the patient was in danger. After this had passed off, the serous surface of the intestinal loop and the surrounding extensive surface of the wound began to granulate, so that the longitudinal muscles and the sacculi, at first very distinct, gradually became indistinct. The serous surface of the intestine, which at first greatly exceeded in extent the exposed mucous membrane, contracted so greatly, that the edges of the mucous membrane of the openings gradually came into direct contact and were everted.

In July, the large cutaneous wound had become covered in with skin, and the three large mucous tumours corresponding to the three openings became confluent, forming one swelling covered with mucous membrane, marked by two deep furrows. From the uppermost opening projected a portion of intestine, which was about 11 centimètres (about 4½ inches) long, when the patient walked much. As the descending limb had been from the first completely shut off at the neck of the hernia, no fæces could pass into the lower portion of the intestine. The surgical importance of the case will be the subject of comment in another place.

Description of the Portion of Intestine used in Experiment.—For the purpose of experiment, we had the prolapsed loop with its two divisions, and the terminal portion of the intestine. The loop soon became so narrow, that there was difficulty in passing the little finger through it. Besides this, there was very remarkable contraction and shortening of the serous surface. There remained also for our purpose the terminal portion of the intestine below the lowest opening; this had retained its normal proportions. Its length was ascertained, by introducing a flexible tube into the rectum of the anus and bringing it out at the lowest fistulous opening, to be about 29 or 30 centimètres (about 11½ inches). As the circumference of the rectum in an adult man of the same age (undistended) is about eight centimètres (3.15 inches), there would be a surface of about 240 square centimètres, which with a radius of 1.28 centimètres, gave a space of 154.5 cubic centimètres. This agrees nearly with the result of filling the rectum with water from a height of forty centimètres (15.75 inches); from 180 to 210 cubic centimètres of water being poured in. The prolapsed mucous membrane was quite free from tenderness, and no contraction took place on irritating it with a needle or with the induced current. The constant current, on the other hand, produced, with two of Stöhrer's elements, active contractions, which continued as long as the electrodes were in contact with the intestine. When six elements were used, very energetic contractions followed, and the patient complained of colicky pains

in the abdomen, which were increased on multiplying the elements. The contractility was especially tested on the prolapsed portion of intestine, which reacted very readily. The contraction-wave was propagated from this very slowly to the perfectly separate exposed loop of intestine. The exposed loop also reacted very slowly to the constant current. Simple touch produced no contraction, even when pieces of ice were laid directly on the mucous membrane. On the other hand, when the mucous membrane was gently stroked by the finger or an instrument, contractions at once set in. This was especially remarked when the finger was passed into the lumen of the gut; the intestine at once contracted very strongly on it, and, if the exploration were continued longer, became red, and showed an increased secretion of mucus.

When the patient lay quietly in bed, the fæcal evacuations generally took place in the morning; but they showed similar irregularities to those observed in Busch's case. At night, as a rule, there was no evacuation of fæces. It was several times observed that, while the fæces passed from the uppermost fistulous opening, the contractions were not propagated to the lower portion of intestine. Antiperistaltic movements were not observed with certainty to be present. The exposed mucous membrane was normally of a clear red colour, but bluish red when inflamed, swollen, smooth (wrinkled during contraction), glassy, and firm to the touch. At first, while there were still some unhealed portions in the neighbourhood, the mucous secretion was tolerably abundant, and the thready glassy mucus could be collected in large drops without trouble. On the other hand, at a later period, when the experiments on absorption were made, mucus was present in smaller quantities only. The pure mucus was clear, soon becoming faintly opalescent, and contained scattered masses of protoplasm, somewhat larger or smaller than white blood-corpuscles; these generally presented nuclei, which were not always distinct, and were frequently covered with small fat-drops or contained small vacuoles. On slight irritation, epithelium generally became mixed with the mucus and produced distinct cloudiness. The mucus, as well as the mucous membrane, was intensely alkaline, and effervesced a little on the addition of an acid. The fæces generally had an intensely acid reaction.

Method of Research.—The researches were, in the first place, made on digestion and absorption. Digestion was tested by means of the intestinal secretion both without and within the intestine. Coagulated egg-albumen was placed with the intestinal secretion in test-tubes which, their mouths having been stopped with cotton-wool, were exposed for two or three hours to a temperature of 35° C. (95° Fahr.). The same was done with fat and with paste.

The changes within the intestinal canal were examined simultaneously with the researches on absorption. For the latter purpose, we used the terminal portion of the intestinal tract from the lower end of the sigmoid flexure to the anus. For the purpose of introducing the materials to be experimented on, the lowest of the fistulous openings, which led into the rectum, was used; a soft India-rubber tube, attached to a glass funnel by which the fluids could be conveniently poured in, was passed about 5 centimètres (4 inches) into the bowel. The last remains of the fluid were pressed out from the funnel and tube into the intestine. The fluids

were removed *per anum*, by means of an œsophageal tube. It was first ascertained what quantity of water could be contained in the portion of intestine used for experiment, without being forced out by its contractions. This was about 20 cubic centimètres; although under a somewhat higher pressure, as above-mentioned, much more could be introduced for a short time. It was further determined, how much water could be removed after its introduction *per anum*. In the first observations, there was a difference varying from 2 to 10 cubic centimètres, representing the quantity of fluid retained in the intestine.

The errors in investigation having been made as small as possible, the fluids to be experimented on were introduced every two hours into the rectum, in portions of 15 cubic centimètres, through the funnel and elastic tube.

In the process of removal, the fluid which was not absorbed was separately drawn off by the rectal tube. In order to further reduce as much as possible the errors which might be caused by the remaining of the fluids in the intestinal tube, the intestine was washed through the funnel and India-rubber tube with separate quantities of water, each 60 cubic centimètres, which were separately drawn off by the rectal tube, care being taken to remove each portion as completely as possible. As the weight of the water poured in was known, and the weight of the water withdrawn, after removal of the solid residue, could be ascertained, the difference between the water poured in and that drawn off represented the quantity retained in the intestine. Further, the condition and degree of concentration of the retained water must be the same as of that which last escaped. In the experiments with albumen and starch, water only was used for washing, but, in those with fat, a fluid capable of making an emulsion of the fat. The experiments were made with solutions of albumen, with the albumen of hen's eggs, with emulsion of fat, and with paste. The solution of albumen was prepared by beating ordinary egg-albumen with one and a half volumes of water, and filtering the mixture after it had stood for some hours, during which it was frequently stirred. Researches were also made with undiluted egg-albumen; this was beaten to a froth, and the fluid which remained was used. The fat was not taken directly as such, but an emulsion of olive-oil was used, prepared by adding a small quantity of carbonate of soda (0.5 per cent.) to the water. The paste had to be much diluted, so that it could be poured in as a fluid.

The fluids were subjected to accurate chemical tests before being poured in, and also after being removed. In the experiments with albumen, a weighed quantity was first evaporated to dryness in a water-bath, and then dried in the air at a temperature of 230° Fahr. until there was no further loss of weight. Another quantity of known weight was coagulated, and washed successively in a weighed filter with water, alcohol, and ether, and also dried at a heat of 230° Fahr., till there was no further loss of weight. In the later experiments, the filtrate of coagulated albumen was also tested quantitatively and qualitatively for the transformed albuminous compounds contained in it. The filtrate of the coagulum used in the quantitative analysis was evaporated in a water-bath, until traces of a solid residuum appeared at the edges of the fluid. (There was now only a small amount of the fluid remaining.) Absolute alcohol was then slowly added to the fluid in the water-bath, which was constantly

stirred, until a milky opacity had been produced. The warming of the fluid was continued until the precipitate had collected into large flocks which floated in clear fluid. The flocks were collected on a weighed filter, dried at a temperature of 230° Fahr., and weighed. The precipitate used for the quantitative determination was not fit for qualitative analysis, as the drying at a heat of 230° Fahr. changes the bodies so much that they no longer yield the reactions which they give when not dried. They also lose their solubility. A single test, therefore, was used for qualitative analysis. The albumen was prepared in the way above described, but instead of drying them after filtration at a temperature of 230° Fahr., the filter was left in a shady place, free from dust, until the alcohol had evaporated; a little boiling-hot water was then poured on the filter, and the resulting filtrate tested qualitatively. In consequence of the use of boiling-hot water, some of the albumen remains on the filter.

The chloride of sodium was determined by volumetric analysis with a solution of silver.

In the experiments with the fat emulsions, the dry residue was obtained by the use of a sand-bath over a very slow fire. For the direct determination of the fat, the ethereal extract of the dry deposit was used. Of the parts used, the dried residue alone was determined; this was also tested qualitatively for sugar. The acid or alkaline reaction of all the fluids was of course ascertained.

[To be continued.]

MAREY ON THE PHYSIOLOGY OF FLIGHT IN BIRDS.—In a recent note to the Paris Academy (*Comptes Rendus*, Jan. 12), M. Marey states that he has lately wrought in a new direction; trying, with mechanical arrangements, to produce wing-strokes capable of raising weights. He has succeeded in determining the conditions in which these apparatus can rise by the descent of their wings. It is necessary (he says), that the *moment* of the motive force be a little superior to that of the resistance of the air (the wings themselves being of negligible weight). The force was that of a spring attached near the articulation. The resistance of the air under each wing must be equal to half of the weight of the machine, in order to the effects of gravity being neutralised. If we suppose the wing of triangular shape, and the resistance of the air proportional to the square of the velocity, the point of application of the resultant of all the pressures of air under the wing will be situated in the middle of the wing, and at three-fifths of its length, reckoning from the joint. Thus it is easy to make an apparatus capable of rising by the descent of its wings. The necessary conditions are realised, when, placing a finger under each of the wings, at the points where the resultants of the air-pressures are applied, one can raise the machine without bending the depressing springs.

The author verified these dynamical conditions in nature; measuring the statical effort of which the pectoral muscles are capable, and determining their place of insertion, the form of the wings, and the bird's weight. When, however, he compared the velocity of wing-stroke of his apparatus with that observed in registering the movements of real birds, he perceived that the machine, in order to be raised, required a wing-stroke three or four times as rapid as that of the bird. Now, with equal motive

force, what governs the velocity of such motion is the resistance opposed to it; it seemed, therefore, that the air resisted his apparatus nine or sixteen times less than the wing of the flying bird.

M. Marey recoiled at the apparent absurdity of this conclusion; but from frequent measurements of the velocity of descent of bird's wings, he was convinced that it was insufficient to support the birds in the air, unless there were some condition present, increasing the resistance under the animal's wing, which was wanting in his apparatus. He endeavours to show that it is the translation of the bird that produces this increase of resistance; and his explanation is as follows.

The air, like all ponderable bodies, presents effects of inertia; that is to say, when subjected to a constant impulsive force, it resists strongly during the first instants, then acquires a velocity, and finally tends to maintain this velocity, when the impulsive force ceases. If we take a disc, and give it a uniform movement in a direction perpendicular to its plane, we may, with an inscribing dynamometer placed behind it, ascertain the resistance of the air at different instants of the movement. We then find, 1. a considerable resistance at the beginning; this is due to the inertia of the column of air which the disc tends to displace; 2. a weaker pressure, maintained during the movement; 3. a tendency of impulsion in the disc when it is stopped; this is due to the velocity acquired by the column of air in movement. Thus the resistance presented by the air to movements of a body is composed of a *regular regime*, preceded and followed by two *variable states*. The regular regime is what various experimenters have sought to measure.

If it be proved that, during the initial variable state, the resistance of the air reaches its maximum, then, clearly, the wing of a bird ought to find, in the air, a more solid fulcrum, if, during the whole time of its descent, it can place itself in these initial conditions. Now, through the bird's movement of translation, the wing, at each instant of its descent, acts on a new column of air which it tends to depress; but, owing to the short duration of the pressure, each of the air-columns has not time to acquire the velocity of the wing; it is compressed, and presents the maximum resistance of the initial variable state. To test this theory, the author gave his apparatus a horizontal movement of translation, and ascertained, in these circumstances, an increase of the resistance of the air to the wing's movements, shown in retardation of those movements.

Then he made an artificial bird, the wings of which were driven by an air-pump. A steam-engine working this pump uniformly, produced perfectly regular wing-strokes. The artificial bird placed at the extremity of a long arm could be made to beat its wings, either remaining in one place, or being subjected to a quick circular motion. Measuring the amplitude of the strokes when the apparatus was not rotated, M. Marey found that, between the two extreme positions, the wing formed an angle of about 60 degrees. With a circular movement of about 10 m. per second, the amplitude of the strokes fell to 30 and even 20 degrees. Now, there was no change in the motive force, or in the frequency of movements of the wings; it is necessary, then, to suppose an increase of the resistance of the air, to explain this diminution in the amplitude, that is, in the velocity of the strokes.

Thinking it possible that the centrifugal force

developed might be a disturbing influence, the author varied the experiment, giving the artificial bird a rectilinear movement, but the same retardation was obtained.

Several phenomena, it is pointed out, may, in this way, be explained. Thus when a bird takes flight, the movements of its wings are very expanded; but they are less so when the horizontal translation of the bird is become rapid. When a bird flies attached to a string, it descends (notwithstanding that the wing-strokes continue) whenever the tension of the string stops its horizontal velocity. A bird, in taking flight, turns towards the wind as much as possible; because then the wind, continually bringing new layers of air under its wings, places it in the same conditions as horizontal translation.

ALEX. B. MACDOWALL.

THERAPEUTICS.

ON CHLORAL-HYDRATE AND ITS USE IN MEDICINE. BY DR. OSCAR LIEBREICH, PROFESSOR OF MATERIA MEDICA IN THE UNIVERSITY OF BERLIN.*

The numerous new notices which have been published since the appearance of the third edition of my essay on Chloral-Hydrate (Berlin, 1873) induce me to return to this subject; although I had hoped that the explanations given in that work would be sufficient to place the indications for the use of this medicine in a more secure position. But, just as before, the most contradictory views multiply. Extolled by some, by others it has been altogether thrown aside, when used in the treatment of the same symptom. As far as my experience in most cases has taught me, this does not depend on uncertainty in the action of the medicine, but on the imperfect carrying out of the instructions which I have very distinctly given. I do not deny—on the contrary, I have emphatically stated—that there are certain contraindications to the use of chloral-hydrate: and the true value of a remedy can only be determined when these contraindications are most surely determined.

In most substances in use derived from the animal and vegetable kingdoms, the action is centred in one or more chemical bodies of constant composition. Technological chemistry knows how to obtain these by certain fixed methods; and apothecaries buy these substances for the purposes of dispensing, and are content to test their purity by chemical examination. Even if there be impurity, the principal action of the drug always comes into the foreground when it is administered, and can at most present changes of degree, not of kind.

The conditions are quite otherwise with substances which are obtained by the action of chemical processes on organic substances. Every one knows how small an addition of impurity is sufficient to render chloroform incapable of being used in medicine. Quinine, on the other hand, may contain other substances arising from the process of manufacture, without showing a dangerous or perverted action.

As with the preparation of chloroform, so with that of chloral, it is one of the most difficult technical operations to attain a preparation that shall answer

its therapeutic object. A great part of the cases observed by therapists have been treated with impure preparations; and I would not venture to make this assertion if I were not in a position to give ocular demonstration of it. I have not failed, in cases where there was a continuously bad action of the chloral, to have the preparations submitted to me; and thus I possess a collection of the most horrible chemical mixtures, which I should never venture to give to any man. The mode of preparing chloral has been no secret; it has been publicly described in a classical manner by Justus von Liebig. A few grammes were enough for him to perfect the discovery on chemical principles; so great a quantity as fifty grammes, which I delivered to the chemical discoverer of chloral, had, according to his statement, never been seen by him in one mass. If, in spite of ample directions, the preparation of a small quantity requires the hand of a practised chemist, it is easy to understand that the preparation of large quantities must seem at first quite impossible. After the publication of my therapeutic observations, it would perhaps have been some years before chloral hydrate was introduced into practice, had it not been perfectly clear to me that I must undertake the manufacture of the preparation under my own observation. Thus the first large supplies which came into the market were manufactured by Dr. Martius and Dr. Mendelssohn. Every one had now a standard for comparison; and soon manufactories of the preparation arose in the most various localities.

The mode of manufacture cannot be held responsible for the activity of the various preparations, in so far as the research into their fitness for use lies beyond the limits of chemical analysis. In many products the impurity is quite evident, and yet they have been allowed to be used by hundred-weights. In this way, it is possible to indicate districts of the country where chloral-hydrate has fallen into utter discredit through the badness of the products used under its name. In America, *inter alia*, gangrene has been observed after the use of chloral-hydrate. In the kingdom of Saxony,* where the drugs are mostly obtained from one establishment, the use of chloral has fallen into discredit; and in the druggist's shops in Switzerland I was told that they would no longer keep such a dirty substance as chloral, especially as the physicians there, after experience of its action, have quite given up its use.

Until lately chloral was used in the laminated form, prepared by distilling anhydrous chloral at a proper temperature with a sufficient quantity of water, and thus forming a hydrate of chloral. In such a mode of preparation, the correct boiling-point and the reaction necessary to purity can be accurately found, and even the amount of chlorine contained may be nearly correct; yet, in spite of this, hurtful substances are formed during the preparation or in consequence of the ready decomposition of the laminæ.

The foreign substances may be of two kinds. There may be substances containing chlorine, which form hydrochloric acid in contact with alkalis or even with water, and, as has been shown by experiments on animals, may cause death when used in relatively small quantity. Chloral-hydrate of this kind often has a good appearance, but is one of the most dangerous preparations; when it is given to man, the

* When chloral-hydrate was required for use in a high quarter, that prepared in Berlin had to be sent for, as the confidence in the local preparation was too much shaken.

* *Berliner Klinische Wochenschrift*, no. 5, 1874.

stage of excitement becomes excessive, and altogether overcomes the desired hypnosis. On the other hand, I have observed that the sleep-producing power of chloral-hydrate in laminæ may be more energetic than that of the perfectly pure hydrate. The reason of this lies in the admixture of such substances as, under decomposition, produce chloroform more rapidly than chloral does. I have, however, never as yet succeeded in forming this interesting mixture; and, as every chemist knows, the process of manufacture is so complicated, that it is impossible to determine what are all the products that result from the process. This last-mentioned admixture would not in itself be a disadvantage in the therapeutic use of hydrate of chloral, if it were constant; but, unfortunately, there is the uncertainty as to the dose to be given, and the danger, in changing the preparation, of giving at one time too much, and at another time too little.

There is one phenomenon to which I would recommend special attention, namely, that pure chloral-hydrate in laminæ suddenly undergoes alteration, generally with the expulsion of hydrochloric acid gas.

For the reasons here adduced, it became necessary to consider how to discover a form of chloral-hydrate which should give a guarantee of greater stability. The endeavour has been successful; and the crystals of hydrate of chloral obtained from the most various fluids, such as chloroform, ether, sulphide of carbon, benzol, &c., appear, when pure, to be altogether the most desirable preparation.

This form has been received into the German *Pharmacopæia*; but the mode of preparation is not sufficiently indicated, and consequently products in this form are brought into the market, which worthily vie with the worst specimens of laminæ. Setting aside the fact that the statement of the maximum dose has apparently been forgotten in the German *Pharmacopæia*, the description in that work is in no way sufficient for its use in medicine. It is but rarely that it can be obtained absolutely free from hydrochloric acid, even when the purest laminæ have been used for crystallisation; and the neutral reaction, under the slightest oxidation in the air, passes into acidity.

I have assigned to chloral the properties of freedom from hydrochloric acid and neutrality. But, in preparing the drug on an extensive scale, these cannot be equally obtained; and the German *Pharmacopæia* gives instructions on this point which go far beyond the limits of possibility. Chloral-hydrate, pure in other respects, may contain a large admixture of hydrochloric acid without any detriment to its action, though it cannot be used for analysis; in therapeutic use such a combination with hydrochloric acid may even appear desirable, and I shall have an opportunity of returning to this subject in the therapeutic part of this article. The evidence of the presence of hydrochloric acid in chloral does not show that the preparation is useless; but the constant formation of hydrochloric acid under the influence of decomposition by water indicates danger of impurity. . . . A solution ought to show no increased indication of the presence of chlorine within a given time. We may convince ourselves by examination, that many specimens of chloral, which at first give no evidence of chlorine, yet gradually yield chlorine and become unfit for use. Just as little is the acid reaction to be feared in an otherwise pure product. A solution of pure chloral becomes acid, by oxidation into trichloroacetic acid,

which delays its hypnotic action but does not change it. Impure chloral, through the formation of hurtful chlorinated compounds, which are evidently not trichloroacetic acid, manifests a constantly increasing acid reaction and a perverted therapeutic action.

The German *Pharmacopæia* gives the boiling-point of the crystals as about 95° Cent. (203° Fahr.). This is about the boiling-point of anhydrous chloral, while chloral-hydrate has no constant boiling-point.

I have thought it my duty to make these preliminary remarks in the interest of the use of the medicine. They show that, chloral being a substance of which little has been hitherto known, and the modes of preparing it being often rough, many apothecaries' shops, partly from ignorance, partly from mercantile views, furnish very bad products; the more so, as the directions given in the German *Pharmacopæia* afford no security for the purity of the drug.

(To be continued.)

PUBLIC HEALTH.

MEDICAL STATISTICS OF THE CENSUS.

The following highly valuable and important particulars with regard to the idiots or imbeciles, lunatics, and patients in hospitals in Great Britain, are extracted from the final report of the Census Commissioners, which has just been issued.

Idiots or Imbeciles.—In conformity with the terms of the Census Act, an attempt has been made for the first time to ascertain the number of idiots or imbeciles amongst the population of England and Wales. This has been done by means of an instruction in the householders' schedules, requiring that if any persons mentioned therein were suffering under the infirmity of idiocy or imbecillity they should be so described.

According to the returns, the total number of persons described as idiots or imbeciles in England and Wales is 29,452, the equality of the sexes being remarkable—namely 14,728 males and 14,724 females. Compared with the entire population the ratio is one idiot or imbecile in 771 persons, or thirteen per 10,000 persons living. Whether the returns are defective owing to the natural sensitiveness of persons who would desire to conceal the fact of idiocy in their families, we have no means of knowing; but such a feeling is no doubt likely to exist among those who look upon mental infirmity as humiliating rather than as one of the many physical evils which afflict humanity. As regards the distribution of idiots and imbeciles, the largest proportionate numbers are in the South-eastern division, which includes the Earlswood Asylum and other institutions containing persons of this class. The numbers are also above the average, in proportion to the general population, in the South-midland, Eastern, South-western, and West-midland divisions, and below the average of England in the London, Northern, York, and North-western divisions.

The ratio of idiots or imbeciles to the population in the several divisions was as follows:—London, one in 1,708; South-eastern, one in 518; South-midland, one in 641; Eastern, one in 636; South-western, one in 669; West-midland, one in 642; North-midland, one in 666; North-western, one in 833; Yorkshire, one in 901; Northern one in 1,028;

Wales, one in 739; England and Wales, one in 771.

Idiots and imbeciles seem to be the last class which has obtained the attention of philanthropists and men of science. Less has been done for them than for lunatics, partly because they are a less dangerous and troublesome class, but partly also from the doubt which existed as to the possibility of effecting a cure, or even any material alleviation of their condition. But attention has now been directed to them, and in consequence of the observation and experience of the last twenty-five years it has been ascertained that in a large proportion of cases of congenital mental infirmity a patient may, by care and training, be made able to contribute, at least in part, to his own support. This and other important results have been accomplished by the means of the special institutions established for these unfortunate persons. At the time of the census there were 3,456 imbeciles—1,998 males and 1,458 females—in special asylums for this class or in lunatic asylums. This is in the proportion of 1 in 8·5 of the whole number. In the south-eastern division the proportion in asylums was one in three, in the Welsh division one in eight, in the west-midland and North-midland divisions about one in nine, while in London only one in sixteen, and in the North-western and Northern divisions about one in seventeen, were in asylums. Those not in asylums were chiefly in workhouses, which contained 7,976 imbeciles, of which 3,548 were males, and 4,428 females.

A valuable institution for the benefit of this class, the Asylum for Idiots at Earlswood, Redhill, Surrey, was instituted in 1847, and incorporated by royal charter in 1862. This important establishment contained 510 inmates 342 males and 168 females at the date of the census. During the year 1872 the average number of inmates was 553. The most beneficial results have followed the efforts made on behalf of these comparatively helpless persons, a large number of whom are usefully employed. As the institution has no funded property whatever, the large sum of 16,000*l.* has to be raised annually by voluntary contributions for maintaining its successful operation.

Two important institutions, situated respectively at Caterham in Surrey, and Leavesden, near Watford, Herts, have been established under the managers of the Metropolitan Asylum District for the reception of harmless chronic lunatics and imbeciles chargeable to the several unions and parishes of the metropolis. These buildings were opened in 1870, and were soon fully occupied by the transfer of the imbecile and lunatic paupers from the workhouses in which they were previously maintained, or from the county lunatic asylums to which they had been removed. At the date of the census there were in the Caterham Asylum 511 male and 755 female patients, total 1,266; and in the Leavesden Asylum 716 male and 875 female inmates, making a total of 1,591. In these asylums, as at Earlswood, measures are taken for supplying opportunities of employment, and of recreation to the patients.

| | Total of Idiots and Imbeciles. | Males. | Females. |
|---------------------|--------------------------------------|--------|----------|
| Under 5 years . . . | 428 | 210 | 218 |
| 5 and under 20 . . | 7,447 | 4,196 | 3,251 |
| 20 " 60 . . | 17,435 | 8,512 | 8,923 |
| 60 and upwards . . | 4,142 | 1,810 | 2,332 |
| Total . . . | 29,452 | 14,728 | 14,724 |

From the tables showing the ages of persons labouring under defect of brain power, it appears that relatively to the general population of the respective ages, the ratio per 1,000 is 1·6 between the ages of twenty and sixty, and 2·4 at sixty and upwards.

To the age of thirty the males preponderate; after that age there is a considerable excess of the other sex.

The principal causes of idiocy and imbecillity are spoken of by those who have studied the subject as distinctly recognised; they are connected with physical or mental weakness, or with abnormal conditions, either the fault or the misfortune of parents. Residence in deep valleys, damp and unwholesome climate, crowded dwellings or other unhealthy conditions, intermarriages among a limited number of families, and more especially where weakness of brain already exists—these are allowed to be predisposing causes; and as they are obviously within human control, the hope may be entertained that the extent of this affliction may be limited in the future.

Lunatics.—Precisely the same measures were taken to ascertain the number of the insane in England and Wales as those already described with reference to idiots. The result is that 39,567 persons—18,146 males and 21,421 females—were returned as insane at the time of the census, being in the proportion of one in every 574 of the general population.

In the report on the census of 1861 we were enabled to give only the number of inmates in the principal lunatic asylums and other establishments for the reception of the insane, namely, 24,345 persons—a great increase upon the number in 1851, which was 16,426 persons. This increase was explained chiefly by the fact of the removal of pauper lunatics from union workhouses to county lunatic asylums, partly by the discovery of fit objects for treatment previously unnoticed, and partly by the supposed prolongation of their existence when thus brought under care. The present returns show an increased number of lunatics in asylums—namely, 35,790 of both sexes—16,545 males and 19,245 females; and the increase must be mainly attributed to causes similar to those in operation between the censuses of 1851 and 1861.

It is a very interesting social question, and one of the utmost consequence to the community, whether mental disease is gaining ground amongst the people of this country. The materials for arriving at a satisfactory solution of this question appear to be wanting. From the returns published in the reports of the Commissioners in Lunacy, it appears that an increase in the absolute number of the insane upon the register is yearly taking place, and that there is also an increase in proportion to the population. On January 1, 1861, the total number of lunatics, idiots, and persons of unsound mind on the Commissioners' register was 39,647, and on January 1, 1872, the corresponding number was 58,640, the ratio to 1,000 of the population having increased from 1·97 to 2·54; but much of this increase must be ascribed to improved registration, to wider recognition of the advantages of asylums, and to a diminished rate of mortality amongst the insane and imbecile in well-regulated establishments specially adapted for their protection and treatment. Formerly the friends and relatives of persons suffering from mental infirmity kept them at home as long as it was safe to do so, because they associated the lunatic asylum, or 'madhouse,' with

the idea of ill-treatment or neglect; whereas now, owing to the increasing confidence felt in the humane treatment of the sufferers from mental disease, the first thought of the relative is to send the patient to an asylum, where they know he will have a certainty of careful attention and the best chance of recovery. The aggregate return of lunatics, idiots, and imbeciles at the census is 69,019, while the Commissioners in Lunacy had on their register on January 1, 1871, only 56,765 'lunatics, idiots, and persons of unsound mind'; so that there might be a large addition to the registered number without a corresponding increase of new cases. Upon the whole, notwithstanding an impression to the contrary, we think that an increase of persons afflicted with mental disease cannot from the facts before us be assumed to have taken place among the population of England and Wales.

Of the 69,019 lunatics and imbeciles returned at the census, more than two-thirds were chargeable to the poor-rates under the denomination of insane paupers. The following is the official return of 'insane paupers' on 1st January, 1871:—

In county or borough lunatic asylums, 27,534; in registered hospitals or licensed houses, 2,741; in workhouses, 10,877; residing with relatives, or in lodgings, or boarded out, 7,292; total, 48,444.

With respect to this return it is stated that it 'includes a large proportion of persons imbecile from old age and of harmless idiots;' the distinction between the idiotic and insane is not observed in the statistics of Poor Law relief.

According to the returns of the Commissioners in Lunacy the total number of lunatics, idiots, and persons of unsound mind registered on the 1st January, 1871, was 56,755 being in the ratio of 2.49 per 1,000 of the population, and they were thus distributed; in county and borough lunatic asylums, 28,979; in workhouses, 12,161; in registered hospitals and licensed houses, 7,078; in naval and military hospitals and Royal India Asylum, 354; in Broadmoor Criminal Asylum, 460; residing with relatives or others, 7,723. The total of 56,755 is made up of 6,110 private patients, 50,185 paupers, and 460 criminals. With respect to workhouses, the Commissioners are able to exercise only a limited control over the arrangements for the comfort and proper care of the insane inmates. The power given by a recent statute for the removal to asylums of patients thought unfit to be kept in a workhouse is said to have proved to be a most salutary provision; but the Commissioners state that they are still without direct power to remedy defects they may notice in these establishments, or to enforce the carrying out of the measures suggested by them for securing improved accommodation for the insane. The first experiment of providing institutions intermediate in character between the workhouses and the county asylums for the reception of harmless chronic and imbecile cases has been successfully carried out at Leavesden and Caterham. On December 31, 1871, there were in England and Wales 54 county and borough lunatic asylums, 16 registered hospitals, 4 state asylums, and 106 licensed houses, making 180 establishments for the reception of the insane, exclusive of about 300 private houses, each containing a single patient.

The local distribution of the 39,567 persons returned as insane at the census depends very much upon the situation of the county and borough asylums and other large establishments for the reception of this class. In some instances two or more adjoining

counties have combined to maintain one asylum. The proportion of lunatics, exclusive of persons described as idiots or imbeciles, to the population is highest in the South-midland division, which includes the Hanwell, Colney Hatch, and other large asylums; the South-eastern, South-western, Eastern, and West-midland divisions follow next in order. In the more northerly divisions and in Wales the proportions are much lower, and in London, although it contains several large asylums, the ratio is lowest of all.

It is clearly shown by the returns that, while cases of idiocy are somewhat more frequent amongst males than females, insanity is more common amongst females than males, and in a marked degree. The 18,146 male lunatics and 21,421 female lunatics returned at the census are in the proportion of 16.4 males to every 10,000 of the male population, and 18.4 females to every 10,000 of the female population of England and Wales. These facts do not support the hypothesis which has been advanced that the greater activity of brain demanded now-a-days from men engaged in commercial and professional pursuits, and the nature of the toil of large bodies of workmen congregated in towns and cities, tend largely to produce an increase of mental disorders; for if this were true, the returns would not show a large excess of cases of insanity amongst women.

As regards the ages of the persons returned as lunatics, the abstracts furnish the following results.

| | Total. | Proportion per cent. |
|-----------------------------|--------|----------------------|
| Under 20 years . . . | 1,042 | 2.6 |
| 20 and under 40 years . . . | 14,166 | 35.8 |
| 40 " 60 " . . . | 16,739 | 42.3 |
| 60 " 80 " . . . | 7,179 | 18.2 |
| 80 and upwards " . . . | 441 | 1.1 |
| Total . . . | 39,567 | 100.0 |

The excess of females suffering from insanity commences at early periods of age. The large proportion of the insane at advanced ages above sixty, points to the success of the means taken for the prolongation of life in the case of chronic incurable lunatics as well as others.

As this inquiry has revealed the fact that there were no fewer than 69,019 insane or imbecile persons in England and Wales at the time of the census, we may remark that there is perhaps no social problem which demands greater attention than how to prevent the growth of mental disease amongst our population. The theory that insanity is a product of civilisation, and that it has been increased by the spread of education among the masses, is entirely unsupported by evidence. The statistics of lunacy fail to show any increase of insanity amongst the ranks in which the mental powers have of late years been so much more cultivated and exercised than formerly. On the other hand, amongst the poorer classes there is an increase in the number of persons under supervision and treatment for mental maladies. This increase has been so marked during the last two years as to have suggested the idea that the explanation is to be found in higher wages, and the consequent means of undue indulgence afforded to some of the working class; while others, by the operation of the laws of supply and demand, have been reduced to the direst poverty and distress.

It has been established by the observation of many authorities that intemperance is the most prolific cause of insanity, especially among the working

classes. To the cases of madness resulting from habits of drunkenness on the part of the individuals themselves must be added the numerous instances in which persons owe their insanity to the intemperate habits of their parents. It is said that the fruitful source of mental disease, hereditary taint—insanity inherited from parents—is fostered by the insane being allowed to propagate their kind with scarce any effort to check so deplorable an event. Large numbers of the insane and the idiotic still remain at home or are 'boarded out,' and become in many instances the agents of extending the fell malady through their offspring.

The following are the absolute numbers and the proportions to the general population, at vicennial periods of age :—

| | Under 20 Years of Age. | 20-40 | 40-60 | 60-80 and up- wards. | 80 |
|---------------------|--|-------|-------|-------------------------|----|
| Idiots or Imbeciles | { M. 4,406 . 5,546 . 2,966 . 1,597 . 213 F. 3,469 . 5,483 . 3,440 . 1,996 . 336 | | | | |
| Lunatics | { M. 553 . 7,027 . 7,512 . 2,919 . 135 F. 489 . 7,139 . 9,227 . 4,260 . 306 | | | | |

PROPORTIONAL NUMBER AT EACH AGE TO 10,000
POPULATION.

| | Under 20 Years of Age. | 20-40 | 40-60 | 60-80 and up- wards. | 80 |
|---------------------|--|-------|-------|-------------------------|----|
| Idiots or Imbeciles | { M. 8.5 . 17.4 . 15.6 . 21.8 . 40.1 F. 6.7 . 15.6 . 16.8 . 23.8 . 45.1 | | | | |
| Lunatics | { M. 1.1 . 22.1 . 39.6 . 39.9 . 25.4 F. .9 . 20.4 . 45.1 . 50.8 . 41.1 | | | | |

Patients in Hospitals.—Following the course adopted in 1851 and 1861, we have caused abstracts to be prepared showing the number, sex, and ages of the inmates of hospitals for the sick, and of prisons. The principal results presented in these tabular statements will now be briefly noticed.

Since the previous census a large amount of additional hospital accommodation has been provided in the cities and towns of England; in several villages 'cottage hospitals' have been established; and it may be truly said that there is scarcely any form of bodily suffering to which the doors of one or other of these institutions is not open. The hospitals—sometimes called infirmaries—are chiefly of three classes: general hospitals, in which are received as in-patients or treated as out-patients persons suffering from diseases (with certain exceptions), accidents, injuries, and deformities; special hospitals for patients suffering from one class of diseases, as fever, small-pox, or consumption, and class hospitals which receive only one description of persons, as soldiers, sailors, women, children, &c.

The number of in-patients under treatment in hospitals of these several kinds (excluding the sick wards of workhouses, prisons, &c.) on the day of the census was 19,585, namely, 11,425 males and 8,160 females. In 1861 the number of in-patients in the civil hospitals (the military and naval hospitals not having been included in the tables) was 10,414. Some part of the greatly augmented number of sick persons in hospitals on April 3, 1871, was owing to the severe epidemic of small-pox then prevalent, which appears to have killed in England and Wales, within the year, upwards of 23,000 persons. In the hospitals for small-pox under the Metropolitan Asylum Board, situate at Homerton, Stockwell, and Hampstead, 12,840 patients were admitted during the year, of whom more than one-sixth died. The aggregate number of the sick in hospitals gives the ratio of 1 in 1,160 of the general population.

The highest ratio of the sick in hospitals is found in London, where twenty-five males and twenty-one females in every 10,000 of each sex were in-patients. Considerably more than one-third of the total number returned were in these hospitals, whither patients are attracted by the high reputation of the medical officers, the extent of the accommodation, and the immediate attention that is given in cases of accident and emergency. Next to the metropolis the in-patients were most numerous in proportion to population in all the south-eastern counties, and in Devon, Gloucester, and Warwick. They were proportionately least numerous in the Welsh statistical division.

The abstracts of the ages of the sick in hospitals present the following aggregate results :—

| | Total. | Proportion per cent. |
|---------------------------|--------|-------------------------|
| Under 10 years | 2,203 | 11.2 |
| 10 and under 20 | 4,617 | 23.6 |
| 20 " 40 | 8,187 | 41.8 |
| 40 " 60 | 3,226 | 16.5 |
| 60 " 80 | 1,228 | 6.3 |
| 80 and upwards | 124 | .6 |
| Total | 19,585 | 100.0 |

The children under ten in hospitals were more than double the number enumerated in 1861. At all the age periods to sixty-five years the males preponderate.

As powers are now given by statute enabling every sanitary authority to provide, within its district, hospitals or temporary places for the reception of the sick, a further extension of the hospital accommodation may be expected, and the means will no doubt be provided to secure the isolation of cases of dangerous infectious disease in localities where no such provision has hitherto been made.

SANITARY OPERATIONS AT CROYDON.—The mortality tables of the parish of Croydon for the year 1873, as compiled by Dr. Westall, have been issued. The comparative mortality has generally shown the parish of Croydon to be nearly as healthy as the country districts; for the last year, however, Croydon has earned the distinction of being absolutely healthier, not merely than the town districts of England, and the average of all England, but of the country districts exclusively. In the town districts of England the mortality during last year was 23.2 per thousand; in the country districts, 18.5; in all England, 21.2; and in the parish of Croydon 17.4. The total number of persons who died in Croydon in 1873 was 999 against 1,040 in the previous year. Of the 999 deaths there were none from cholera, two from dysentery, five from small-pox and nine from fever, four of the latter occurring at Norwood. Croydon was one of the first towns in the kingdom to adopt the principle of sewage irrigation, and, as the result of this and an improved system of sewage ventilation, the effects of epidemic diseases are found to be much less severe than formerly, and the death-rate has diminished till the average has become lower than that of the most favoured country districts.

SANITARY INSPECTOR'S REPORT, MADELEY UNION.—Some admirable printed reports made by the Sanitary Authority of the Madeley Union, the Inspector of Nuisances, Mr. C. Slagg, are before us. Sanitary surveys of villages by competent persons have long been wanted. Those of Madeley and

Coalport, the parish of Little Wenlock, the Dawley district, and the parish of Much Wenlock are models of what should be done throughout the country. The sanitary defects are of course numerous. They are well considered under the following heads :

1. Exhalations of privy cesspools, and how to prevent them.
2. Exhalations of drains and sewers, and how to prevent them escaping into the air daily breathed by the inhabitants—that is, the air at or near the ground.
3. Contaminations of the sources of water supply.
4. Dampness of floors upon which, and the walls against which, people lodge ; and whether the rain-water which falls upon the roofs of houses, and other buildings, is caught and stored for use.
5. Whether the trades of the town are carried on so as not to be a nuisance.
6. The keeping of pigs near to dwelling-houses.
7. The house drainage and the sewage.
8. The disposal of the sewage that must necessarily flow from the house down to the outfall of the sewers.

Not only have these matters come within the province of Mr. Slagg to report upon, but he has done what very few have been so well able to do, that is, to give in a very lucid and practicable manner the remedies most easy of attainment and so far render to Boards of Guardians and to Medical Officers of Health a more easy task than many of them find themselves in a position to perform. In regard to pig-sty nuisances, Mr. Slagg thinks it more a question of attention to the cleaning out of the sty than of distance from a dwelling-house. He very properly fixes no arbitrary distance ; but if near and badly kept they must be considered a great nuisance. They cannot be kept in a proper condition if paved roughly with boulders or rough bricks. All pig-sty floors should be evenly paved, so that filth can be easily swept out. The following is admirable advice. All water should be excluded from privy cesspools, and they should be converted into dry cesspits.

The reports of Mr. C. Slagg are all extremely interesting and instructive to Officers of Public Health, and more so when we consider that the new class of men coming forward have much to learn.

R. HARDWICK, M.D.

ADULTERATION OF FOOD ACT : PROSECUTIONS.
At the Worship Street Police court, two shopkeepers were fined for selling adulterated butter. In one case it was proved that the butter had been adulterated with nearly 21 per cent. of water ; in another, where the seller, after having been paid for it, said she could not recommend it, it was stated that there was a large adulteration by tallow as well as a quantity of water, so that the composition was heavy against the purchaser. In the latter case a fine of 10s. and 12s. 6d. costs was inflicted.

RECENT PAPERS AND DISCUSSIONS ON PUBLIC HEALTH.

AT THE SOCIAL SCIENCE ASSOCIATION.

February 2.—On the Municipal Reform of the Government of London. By Arthur Arnold, Esq. With Discussion.

February 23.—On School Hygiene. By Dr. Liebreich.

March 2.—On Hospitals, Cottage Hospitals, and Ventilation. By C. Shrimpton, M.D., &c.

AT THE NATIONAL HEALTH SOCIETY.

February 5.—On Respiration and Ventilation. By Charles Tomlinson, F.R.S., &c.

March 5.—Dr. Lankester, On Teaching Physiology in Schools.

BRITISH MEDICAL ASSOCIATION—METROPOLITAN BRANCH.

On the Public Health Laws. By W. H. Michael, Esq.

EPIDEMIOLOGICAL SOCIETY.

February 11.—On Quarantine in Relation to Epidemic Cholera. By Dr. Gavin Milroy.

March 11.—On the Errors of the usual Methods of Investigating the Causes of Epidemics. By Inspector-General R. Lawson, F.R.C.S., &c.

MISCELLANY.

VACCINATION IN RUSSIA.—An imperial edict in Russia requires that *employés* in hospitals, barracks, and prisons, should be taught how to vaccinate, and should vaccinate all the individuals under their supervision.

CONTAGIOUSNESS OF SCARLATINA.—Dr. Snow, the Health Officer of Providence, Rhode Island, in his monthly report, uses this language with reference to scarlet fever. 'I have seen no reason, in the present epidemic, to change the opinion formed from twenty years' close observation, that it is not contagious in the ordinary meaning of the word.'

AMPUTATION WITHOUT HÆMORRHAGE.—A case of amputation without hæmorrhage is reported in the *American Journal of the Medical Sciences*, by Dr. E. P. Sale, where nature provided against bleeding in her own way. The patient, while chopping wood, nearly cut off his foot at the tarso-metatarsal articulation. He suffered so much from shock and hæmorrhage that amputation was postponed a week, when the part of the foot beyond the wound became gangrenous. Amputation was performed just above the ankle ; no hæmorrhage followed the operation. The patient recovered without an unfavourable symptom. It was accounted for by thrombosis of the various arteries, brought on by anæmia, which rendered the blood hyperinot, as in the formation of heart-clot after a profuse *post partum* hæmorrhage.

THE MEDICAL OFFICERS OF THE ASHANTEE EXPEDITION.—The war with Ashantee is now apparently at an end, with a much less considerable loss of life than was reckoned on ; the gallantry and endurance of a small army that has fought its way under a tropical sun, quite indifferent to fatigue and hard labour, is worthy of admiration. As a profession, we may also congratulate ourselves on the excellent feeling that has prevailed throughout the war between the medical staff and the executive ; indeed it has rarely happened that so great cordiality of feeling has existed, and we may attribute it very much to the voice of the medical officers being more listened to and respected than usual, in all that concerns health provisions. Judging by the despatches of the fall of Coomassie and return to the coast, Sir G. Wolseley and Commodore Hewett have had every reason to approve of the doings of the medical staff, of whom not less than eleven are mentioned by name for their excellent services ; and one we are proud to see pointed out by his commanding officer for an act that will doubtless secure to him the Victoria Cross 'for his gallant conduct in bringing in a wounded marine, at great personal risk, while the rear-guard was being attacked,' and of course immediate promotion will be given to so deserving an officer, as an encouragement to the young medical officers of the service to which he belongs.

THE MASSACHUSETTS DENTAL SOCIETY have resolved, almost unanimously, that the use of chloroform in dental operations is unadvisable.

USE OF ETHER FOR ANÆSTHESIA.—Since the introduction of ether as an anæsthetic it has been used in the Massachusetts General Hospital in 15,000 cases, with an average of half a pound to a patient. In one case four and a half pounds were used in twelve hours.

PROFESSOR HYRTL, who has taught anatomy in the University of Vienna for thirty years, is about to retire on account of failing eyesight. In recognition of his valuable services to science he is to receive 3,150 florins (about 315*l.*), and a yearly pension of 525 florins (about 52*l.*)

POPULAR SCIENCE AT THE ZOO.—The Zoological Society of London are taking laudable measures to extend something of scientific interest in their splendid collections among the great crowd of Londoners who visit the gardens to admire and wonder at the occupants of the cages, and the tanks, and at each other. They have arranged to commence forthwith a series of short courses of lectures of a popular character by eminent authorities. Mr. P. L. Selater, F.R.S., the Secretary to the Society, will deliver the Introductory Address on April 14; and he will follow it by four lectures, *On the Geographical Distribution of Mammals*. After these Mr. A. H. Garrod, the Prosector to the Society, will give five lectures *On the General Classification of the Vertebrata*; and Dr. Carpenter, F.R.S., will conclude the course by giving two *On the Aquarium and its Inhabitants*. The lectures will be delivered on the Tuesdays and Fridays in April and May, at 5 o'clock in the afternoon, they will be free to Fellows of the Society and their friends, and to other visitors to the Gardens. The attendance of ladies is invited.

NOTICE.

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Advertisements should be sent to the Office, 15 Waterloo Place, S. W., before Twelve o'clock on Tuesday morning.

RECORD OF APPOINTMENTS.

HOSPITALS, ETC.

| NAME. | TITLE. | OFFICE. | INSTITUTION. |
|--|---|---|--|
| Canton, Edwin . . . Charnley, W. . . . | F.R.C.S. Eng. Mr. | Surgeon . . . Resident Physician's Assist- ant. | Royal Infirmary for Children and Women. Middlesex Hospital. |
| Crawford, Cooper H. . . Davies, E. Knox . . . Hall, Francis de H. . . Humphreys, Henry . . . Parry, David L. . . . Sarjant, Josiah J. . . . | M.D. Mr. M.D. Mr. L.R.C.P. Ed. M.R.C.S. Eng. | Assistant Physician . . . Resident Obstetric Assistant Assistant Physician . . . Physician's Assistant . . . House Surgeon . . . Assistant Medical Officer . | Staffordshire General Infirmary. Middlesex Hospital. Metropolitan Free Hospital. Middlesex Hospital. Bridgnorth Infirmary and Dispensary. Institution for the Insane, Coton Hill, Stafford. |

POOR LAW AND SANITARY SERVICE.

| NAME. | TITLE. | OFFICE. | DISTRICT. | SALARY PER ANNUM. | AREA. | POPULA-TION. |
|---|--|--|---|--|------------------------------------|---------------------------------|
| Caldwell, Samuel . | L.K.Q.C.P. Irel. | Medical Off., P.V., & Reg. of Births, &c. | Shercock Disp. District, Bailieborough Union. | 7 <i>l.</i> s. d. 0 0 0 and fees. | 11,275 | 4,781 |
| Clarke, William H. Clouting, John R. Doubleday, James . D'Oyle, Patrick O'C. | L.R.C.P. Ed. M.R.C.S. Eng. M.R.C.S. Eng. L.K.Q.C.P. Irel. | Medical Officer Med. Off. and P.V. Medical Officer Med. Off. and P.V. | Workhouse, Stratford Union . . . Croxton District, Thetford Union . . . Chiddingfold District, Hambledon Union . . . No. 3 District, Dursley Union . . . | 40 0 0 — 55 0 0 80 0 0 and fees. | — 17,943 10,818 6,410 | — 2,579 2,349 2,471 |
| Dunn, Robert W. Evans, William W. Gamble, Baptist . | M.R.C.S. Eng. L.R.C.P. Ed. L.K.Q.C.P. Irel. | Medical Officer Med. Off. and P.V. Medical Off., P.V. & Reg. of Births, &c. | Western District, Strand Union . . . Llanfair District, Llanfyllin Union . . . Enniskillen Disp. District, Enniskillen Union . | 150 0 0 65 0 0 100 0 0 and fees. | 331 44,207 39,647 | 25,614 5,668 15,458 |
| May, Harry . Murphy, George . Watson, John W. . | M.R.C.S. Eng. L.R.C.P. Ed. M.D. | Med. Off. and P.V. Med. Off. and P.V. Medical Off., P.V. & Reg. of Births, &c. | { Bow District Colebrooke District } Crediton Union Stanwix District, Carlisle Union . . . Newtownlimavady Disp. Dist., Newtown- limavady Union. | 36 15 0 15 0 0 100 0 0 105 0 0 and fees. | 8,630 4,200 11,730 24,379 | 1,936 787 11,687 7,415 |

MISCELLANEOUS.

| NAME. | TITLE. | OFFICE. | INSTITUTION OR PLACE. |
|----------------------|-----------------|-----------------|---|
| Cleaver, Edward L. | Mr. | Public Analyst | St. Mary Abbots, Kensington |
| Dickinson, Edward H. | M.B. | Physician | Liverpool School for the Indigent Blind |
| Petman, Alexander P. | M.R.C.S. Eng. | Medical Officer | Court Clarendon, A. O. Foresters, Wootton Bassett |
| Trousdell, J. E. | L.F.P.S. Glasg. | Surgeon | Charlaw and Sacriston Collieries, Durham |
| Walker, George E. | F.R.C.S. Eng. | Surgeon | Liverpool School for the Indigent Blind |

RECORD OF VACANCIES.

HOSPITALS, ETC.

| INSTITUTION. | OFFICE. | SALARY PER ANNUM, TERMS, ETC. |
|---|-----------------------------------|---|
| North London Consumption Hospital | Physician | £ s. d. |
| Bloomsbury Dispensary | Resident Medical Officer | — |
| Queen's Hospital, Birmingham | House Physician | 50 0 0 board, lodging, &c. |
| East Suffolk and Ipswich Hospital | House Surgeon | 50 0 0 board, lodging, &c. |
| Bristol General Hospital | House Surgeon | — |
| Birmingham and Midland Free Hosp. for Sick Children | Physician's Assistant | 50 0 0 board, residence, &c. |
| Lancashire Lunatic Asylum | Assistant House Surgeon | 50 0 0 board, residence, &c. |
| | Resident Medical Officer | 60 0 0 rooms, board, &c. |
| | Assistant Medical Officer | 100 0 0 and increase of 10l. per annum, board and lodging |
| Middlesex Hospital | Assistant Physician | — |
| | Assistant Obstetric Physician | — |
| | Dental Surgeon | — |
| Royal Edinburgh Hospital for Sick Children | Assistant to the Extra Physicians | 52 10 0 |

POOR LAW AND SANITARY SERVICE.

| UNION, DISTRICT, ETC. | OFFICE. | SALARY PER ANNUM, TERMS, ETC. | AREA. | POPULATION. |
|---|---------------------------------------|-------------------------------|--------|-------------|
| Narberth Union { District No. 1 | Medical Officer | £ s. d. | — | — |
| Workhouse | | { 35 0 0 and fees | — | — |
| Holbeach Union, Sutton Bridge District | Medical Officer | { 20 0 0 and fees | 8,708 | 1,707 |
| Rugby Union { Workhouse | Medical Officer | { 50 0 0 | — | — |
| Rugby District | Med. Off. & Pub. Vac. | { 50 0 0 and fees | 10,030 | 10,659 |
| Edmonton Urban Sanitary District | Med. Off. of Health | { 30 0 0 for one year | 7,400 | 13,800 |
| Ongar Union, No. 1 District | Med. Off. & Pub. Vac. | { 105 0 0 and fees | 13,730 | 3,105 |
| Ulverstone Union { Hawkshead District | Med. Off. & Pub. Vac. | { 20 0 0 and fees | 33,566 | 3,357 |
| Coniston District | Med. Off. & Pub. Vac. | { 20 0 0 and fees | 2,200 | 316 |
| Torrington Union, Peters Marland District | Medical Officer | { 4 3 0 | 13,690 | 6,444 |
| St. Neots Union, { No. 1 District | Med. Off. of Health | { 76 16 0 | — | — |
| Workhouse | | { 40 0 0 | — | — |
| Romney Marsh Union { New Romney District | Medical Officer | { 110 0 0 | 18,792 | 2,945 |
| Workhouse | | { 52 0 0 | 9,440 | 2,873 |
| Erpingham Union, North Walsham, No. 2 Dist. | Medical Officer | { 100 0 0 and fees | — | — |
| Dunfanaghy Union, Falcarragh Dispensary Dist. | Med. Off., P.V. & Reg. of Births, &c. | { 60 0 0 and fees | 11,231 | 2,266 |
| Towcester Union, Blakesley District | Medical Officer | { 120 0 0 | 40,839 | 9,326 |
| Waterford Union, Kilmacthomas Dispensary District | Med. Off. & Pub. Vac. | { 10 0 0 for six months | — | — |
| Chippenham Urban Sanitary District | Med. Off., P.V. & Reg. of Births, &c. | { 100 0 0 and fees | 25,064 | 10,980 |
| Castleblayney Union, Ballybay Dispensary Dist. | | | | |

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| INSTITUTION OR PLACE. | OFFICE. | SALARY PER ANNUM, ETC. |
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The London Medical Record.

WEDNESDAY, MARCH 18, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BELLINI ON THE ACTION OF IODIDE AND BROMIDE OF MERCURY.

In a paper read on February 8 before the Medico-Physical Society of Florence, Professor Bellini thus sums up the results of experiments on the action of the iodides and bromides of mercury (*L'Imparziale*, March 2).

1. The iodides and bromides of mercury are more or less converted into double salts in the intestinal canal.

2. The reagents which produce this change are, in the stomach, the alkaline chlorides, lactic and hydrochloric acids, and protein aliments, vegetable as well as animal; in the small intestine, the chlorides, and the alkaline carbonates in the enteric juices.

3. The above-mentioned reagents, especially the alkaline chlorides, do not all act with the same energy as the iodides and bromides of mercury; a smaller quantity of double salts of mercury is produced with the protiodide than with the protobromide, and less with the latter than with the iodide or bibromide of mercury.

4. In the large intestine, the iodides and bromides of mercury, and the double salts arising from their decomposition, remain free and unchanged in suckling infants; while in children who are not suckling, and in adults, they are transformed into sulphides by the hydrosulphuric acid gas which is normally contained in this part of the bowels.

5. The iodides and bromides of mercury, applied to healthy or diseased external parts, or injected into the subcutaneous areolar tissue, are partly changed into double salts, principally by the chlorides with which they meet.

6. It is as double salts that the mercurial iodides and bromides act both locally and on the general system.

7. Thus the iodides and bromides of mercury are subject in the animal organism to the same changes as calomel, varying only in degree.

8. Sulphur, and the alkaline hyposulphites, when taken during digestion along with the mercurial iodides and bromides, paralyse the action of the latter: this is the result of the hydrosulphuric acid gas which is given off in the whole alimentary tract.

9. This action is also paralysed in cases where there is an abnormal development of hydrosulphuric acid gas in the intestinal canal.

10. Milk, richly seasoned diet, the alkaline iodides, bromides, and sulphites, ammonia and its salts, and cherry-laurel water, but not the alkaline hydrosulphites, provided that they are taken during fasting,

increase the local and general effects of the iodides and bromides of mercury.

11. These effects are increased, when the mercurial iodides or bromides are administered to persons in whose alimentary canal there is an abnormally large amount of ammonia.

12. Magnesia, in the form of hydrate or of carbonate, given at the same time with the mercurial iodides or bromides, does not destroy their effects, but rather increases them.

13. Acid drinks, food, and fruit, very probably increase the effects of the mercurial iodides and bromides, especially when they are taken some hours after the administration of these remedies.

14. The local and general effects of the iodides and bromides of mercury are greater when they are applied to healthy or diseased external parts, or injected into the subcutaneous areolar tissue, in individuals to whom the alkaline iodides, bromides, sulphites, or hyposulphites, are at the same time given internally.

15. The local and general therapeutic effects of these mercurials may, however, be absent when they are applied to ulcers or wounds in individuals who make use of alkaline hyposulphites; because the latter, in passing by osmosis from the blood with which they circulate into the morbid secretions, may be decomposed by the acids which are formed there, and then hydrosulphuric acid may be formed at the expense of the sulphur which is precipitated, and may reduce the mercury to the state of sulphide.

16. Sulphur baths should not be given when inunction with ointment of mercurial iodides or bromides is used, inasmuch as it paralyses their action, and produces more or less severe local irritation.

17. Clinical observations and experiments on animals are in complete accord with the results of chemical experiments.

In the discussion which followed the reading of Dr. Bellini's paper, Professor Schiff observed that, while it was impossible to deny the intrinsic value of Dr. Bellini's experiments, the results would be more conclusive if the experiments were made not only on rabbits, as Dr. Bellini had done, but also on dogs; inasmuch as rabbits and dogs, as far as regards digestion, represent two extremes, between which stands man.

A. HENRY, M.D.

DUMERIL, VERNEUIL, AND OTHERS, ON NASO-PHARYNGEAL POLYPI.

A recent lecture by M. Dumeril, of Rouen, brought on a discussion in the Surgical Society of that city, on naso-pharyngeal polypi, of which we reproduce the most important lessons (*Journal de Médecine et de Chirurgie pratiques*).

Some of the speakers had studied the nature of these tumours, but some differences arose, since it seems that the nature of tumours referred to polypi of the pharynx is far from being unquestionable. Thus we often meet with sarcomata or fibro-plastic cancers, which are said to be polypi; whilst on the other hand we find polypi of a fibrinous appearance, sometimes with mucous prolongations, which perfectly simulate naso-pharyngeal polypi. The absence of hæmorrhage constitutes one of the greatest dissimilarities from the last-mentioned tumours. This is a most important clinical fact, since hæmorrhage has a large share in the exhaustion and death of patients.

Moreover, their implantation frequently occurs at

the posterior orifice of the nasal fossæ, instead of at the basilar apophysis. MM. de Saint-Germain and Panas cited some interesting facts on this point.

M. Panas, who has made anatomical researches in this region, calls attention to the fact that there is in this situation a mucous membrane with a thick fibrous lining, favourable to the development of this lesion. These polypi, however, are easy to be operated on either with or without incision of the soft palate, by tearing away or even by excision with the scissors. Notwithstanding some cases reported by M. Verneuil, the majority of the members of the society did not admit the existence of naso-pharyngeal polypus in women, or in individuals who have arrived at maturity. It is a disease of youth. When it is met with under other circumstances, it shows us that we have to deal with tumours of another kind, frequently cancerous, and with fibromata having another origin than the basilar apophysis.

Such is the opinion expressed by M. Dolbeau. Other speakers, amongst whom M. Verneuil was prominent, thought this an exclusive opinion; as we do not know definitely the limit of naso-pharyngeal polypus. It possesses no peculiar characteristics beyond hæmorrhage, hardness, and mode of implantation, and even these do not exclusively belong to it. However that may be, it is important to recognise this tumour, which some practitioners have declared to be incurable, now that powerful means can be employed against it. It results from this discussion that, even if rapid recurrence be the rule, cure may be obtained by prompt and successive destructions of new growths; also, as the individual grows older, the tumours show less tendency to recur or to increase, so that cure has been known to supervene after partial destruction. Even M. Guyon's important observations seem to demonstrate that the majority of patients cured retain a sort of thick, fibrous, and abnormal cushion on the basilar apophysis. In such cases M. Verneuil does not believe that we are justified in ranking them as complete cures. If hæmorrhage be the principal characteristic of naso-pharyngeal polypi, the facility with which they reproduce themselves is still admitted by the majority of speakers in such a manner that many of them, like M. Dolbeau, almost absolutely reject the operations of temporary resection that have been proposed, in which the whole or part of a bone is displaced to pull away the polypus and cauterise the pedicle; the bone being immediately restored to its position. Most surgeons will find it necessary to repeat the cauterisation promptly and frequently on the basilar apophysis, if it be desired to avoid recurrence. Amongst the most highly recommended operations are those which consist in dividing the soft palate at the median line with either a bistoury, scissors, or the galvanic cautery; in removing the polypus by the *écraseur*, the galvanic cautery, by crushing, or even by excision, and in cauterising the point of implantation vigorously during some months if necessary. There is no need to trouble oneself about the cleft in the palate; it closes spontaneously, and even more quickly than is desirable. A perfect cure cannot be guaranteed until after many years' observation. Some of the speakers were particularly fearful of hæmorrhage. M. Demarquay related a very remarkable occurrence respecting a woman from whom he had removed the superior maxillary bone. Some blood escaped into the left bronchia. The patient became cyanosed and expired suddenly during the operation. This fact should be carefully noted as showing the

serious import of hæmorrhage. M. Guyon spoke of electrolysis, or the application of the electric poles into the tissue of the tumour. By combining this process with partial excisions, he has obtained excellent results, especially in the case of the son of a medical man whom he has kept in view for several years. Temporary resections were not very warmly defended. M. Chassaignac reminded the meeting that he had praised the merits of the nasal method (lateral and perpendicular incisions, allowing the nose to be thrown over on one side of the face) by which a large and easy passage is obtained for the *écraseur*. He asserted that he originated this method which had been borrowed from him by MM. Boeckel and Bruns; a fact which has also been categorically stated by M. Verneuil.

M. Chassaignac laid stress on the employment of the *écraseur* as a preventive against hæmorrhage. M. Ollier gave some account of his practice, in which he had operated on eighteen cases; of these two died, and about half were thoroughly cured. M. Ollier extolled a method of temporary resection invented by himself. It consists in circumscribing the upper portion of the nose from the ala to the root by a horseshoe-shaped incision, detaching the bones from the nose by a stroke of the saw, and turning the whole downwards; the strip of flesh and the bony structures being replaced after the extraction. Cure is rapid. The passage is narrow, but, having been constantly enlarged by the polypus, it is sufficient. He seizes the polypus firmly with the forceps and twists it on itself to draw it out. He has very little fear of hæmorrhage, never having lost a patient from that cause, but he operates very quickly by vigorous traction, and thoroughly scrapes the basilar apophysis. This is the only way not to leave any nucleus for the reappearance of the tumour. This contingency rarely occurs after the employment of this method, and if it should, the passage can be reopened by the same operation, which is simple, rapid, and leaves no visible traces. The two patients whom M. Ollier lost had prolongations of the polypi into the cranial cavity.

FERRIER'S FURTHER RESEARCHES ON THE BRAIN.*

In a paper read before the Royal Society on March 5, Dr. Ferrier gave the results of an experimental investigation, tending to prove that there is a localisation of function in special regions of the cerebral hemispheres.

In a former paper published by the author in the *West Riding Lunatic Asylum Medical Reports*, vol. iii. 1873, the results were given of experiments on rabbits, cats, and dogs, made specially for the purpose of testing the theory of Dr. Hughlings Jackson, that localised and unilateral epilepsies are caused by irritation or 'discharging lesions' of the grey matter of the hemispheres in the region of the corpus striatum. Besides confirming Hughlings Jackson's views, the author's researches indicated an exact localisation in the hemispheres of centres or regions for the carrying out of simple and complex muscular movements of a definite character, and described by him as of a purposive or expressional nature.

* *The Localisation of Function in the Brain.* By DAVID FERRIER, M.A., M.D., M.R.C.P., Professor of Forensic Medicine, King's College, London. Communicated by J. BURDON SANDERSON, M.D., F.R.S., Professor of Practical Physiology in University College.

Facts were also recorded tending to show that other regions of the brain were connected with sensory perception, but no localisation was definitely arrived at.

Among the experiments now related are some in further confirmation and extension of those already made on cats, dogs, and rabbits, as well as a new series of experiments on other vertebrates. In particular, numerous experiments on monkeys are described, for the purpose of which the author received a grant of money from the Council of the Royal Society. In addition, the results of experiments on jackals, guinea-pigs, rats, pigeons, frogs, toads, and fishes are narrated.

The method of investigation consists in the application of the stimulus of an induced current of electricity directly to the surface of the brain in animals rendered only partially insensible during the process of exploration—complete anæsthesia annihilating all reaction. It is supplemented by the method of localised destructive lesions of the hemispheres.

Special attention is called to the precision with which a given result follows stimulation of a definite area; so much so, that, when once the brain has been accurately mapped out, the experimenter can predict with certainty the result of stimulation of a given region or centre. The theory that the phenomena are due not to excitation of cortical centres, but to conduction of the electric currents to basal ganglia and motor tracts, is considered as disposed of by the fact of the precision and predictable characters of the results, and by the marked differences in the phenomena which are observed when regions in close local relation to each other are excited. Other facts are pointed out, bearing in the same direction; among others, the harmony and homology subsisting between the results of experiment in all the different animals.

The experiments on monkeys are first described.

Reference is made in the description to the figures of the brain, on which are delineated the position and extent of the regions, stimulation of which is followed by constant and definite results.

Generally it may be stated that the centres for the movements of the limbs are situated in the convolutions bounding the fissure of Rolando, viz., the ascending parietal convolution with its postero-parietal termination as far back as the parieto-occipital fissure, the ascending frontal, and posterior termination of the superior frontal convolution. Centres for individual movements of the limbs, hands, and feet are differentiated in these convolutions.

Further, in the ascending frontal convolution, on a level with the posterior termination of the middle frontal, are centres for certain facial muscles, *e.g.*, the zygomatic, &c. At the posterior termination of the inferior frontal convolution and corresponding part of the ascending frontal are the centres for various movements of the mouth and tongue. This is the homologue of 'Broca's convolution.' At the inferior angle of the intraparietal sulcus is the centre for the platysma.

In the superior frontal convolution, in advance of the centre for certain forward movements of the arm, as well as in the corresponding part of the middle frontal convolution, are areas, stimulation of which causes lateral (crossed) movements of the head and eyes, and dilation of the pupils.

The antero-frontal region, with the inferior frontal

and orbital convolutions, give no definite results on irritation. Extirpation of these parts causes a condition resembling dementia.

No results could be ascertained as regards the function of the central lobe or Island of Reil.

Irritation of the angular gyrus (*pli courbe*) causes certain movements of the eyeballs and pupils. Destruction of this convolution gives data for regarding it as the cerebral expansion of the optic nerve, and as such, the seat of visual perception.

The phenomena resulting from irritation of the superior temporo-sphenoidal convolution (pricking of the ear, &c.) are indications of excitation of ideas of sound. It is regarded as the cerebral termination of the auditory nerve. The sense of smell is localised in the uncinata convolution. The situation of the regions connected with sensations of taste and touch is not accurately defined, but some facts are given indicating their probable locality.

The occipital lobes do not react on stimulation. Destruction of these lobes caused no loss of sensation or voluntary motion, but an apparent abolition of the instincts of self-preservation.

The corpora striata are shown to be motor in function, and the optic thalami sensory.

Stimulation of the corpora quadrigemina causes dilatation of the pupils, opisthotonic contractions; and the utterance of peculiar cries when the *testes* alone are irritated. The nature and signification of these phenomena are regarded as still obscure, and requiring further investigation.

Some experiments have been made on the cerebellum of monkeys. They confirm the author's previous views as to the relation of this organ to co-ordination of the optic axes, and the maintenance of bodily equilibrium. The experiments are not detailed, as they will form the subject of a future paper.

New experiments on dogs essentially confirm those already published, while many new facts have been elicited. Those on jackals agree in the main with the experiments on dogs, both as to the character of the results and the localisation of the centres. New experiments on cats generally confirm, as well as further define, the results described by the author in his former paper. The facts of experiments on rabbits, guinea-pigs, and rats are essentially alike, and also confirm former statements.

In all those animals, the sensory regions are defined, and their position compared with those in the brain of the monkey.

The only result obtained by the stimulation of the cerebral hemispheres in pigeons was contraction of the pupil. The region associated with this action, situated in the postero-parietal aspect, is compared with a similar region in the mammalian brain, and regarded as the seat of visual perception.

Movements of the limbs in frogs, and of the tail and fins in fishes (as in swimming), can be excited from the cerebral hemispheres in these animals. Exact localisation of motor and sensory centres is not possible.

The optic lobes in birds, frogs, and fishes, seem related to movements of flight and progression, in addition to their relation with the eyes. Similar phenomena result from irritation of the cerebellum, but the signification of these is reserved for future inquiry.

From the data of physiological experiment, a foundation is obtained for constructing an anatomical homology of the convolutions.

Among other points in homology the fissure of Rolando is shown to be the homologue of the crucial sulcus in the brain of the carnivora.

The whole brain is considered as divided into a sensory and motor region, corresponding to their anatomical relation to the optic thalami and corpora striata, and the sensory and motor tracts.

The motor regions are regarded as essential for the execution of voluntary movements, and as the seat of a corresponding motor memory (motor ideas), the sensory regions being looked upon as the organic seat of ideas derived from sensory impressions. An explanation is attempted of the phenomena of aphasia, and the relation of the memory of words to the ideas they represent.

The theory that a certain action, excited by stimulation of a certain centre, is the result of a mental conception, is considered and disputed. From the complexity of mental phenomena, and the participation in them of both motor and sensory substrata, any system of localisation of mental faculties which does not take both factors into account, must be radically false. A scientific phrenology is regarded as possible.

The paper concludes with a short consideration of the relation of the basal ganglia to the hemispheres. The view is adopted that they constitute a subvoluntary or automatic sensori-motor mechanism.

ANATOMY AND PHYSIOLOGY.

PHYSIOLOGICAL RESEARCHES ON DIGESTION AND ABSORPTION IN THE HUMAN LARGE INTESTINE. BY V. CZERNY AND J. LATSCHENBERGER, OF FREIBURG.*

(Concluded from page 148.)

Researches on Digestion.—Coagulated egg-albumen cut into small sharply angular pieces, so that the least alteration in shape would be detected, showed no change, in spite of remaining in contact for two or three hours, at a temperature of 95° Fahr., with intestinal secretion obtained from the various openings. Even when the albumen, after being thus exposed to the intestinal mucus, was washed, and a solution containing 0.5 per cent. of chloride of sodium was poured over it, no solution or other change followed. Nor did flocculi of fibrin, placed in the same conditions, undergo the least change. Olive-oil, forcibly shaken for a long time with fresh mucus, gave no trace of emulsion. The fat floated unaltered at the surface, and the secretion retained its former transparency. Even when it was exposed to the action of mucus for some hours at a temperature of 95° Fahr., no emulsion was produced by forcible agitation.

Paste mixed with mucus, and set aside for several hours at a temperature of 95° Fahr., gave no trace of sugar. We must here remark, that not only the mucus of the exposed membrane, which might perhaps have undergone pathological changes, was used, but also that from the portion of intestine employed in the experiments, which was not affected by the pathological conditions.

In the beginning of April, a bag of network filled with coagulated egg-albumen was introduced into the rectum through the lowest fistulous opening. It

slipped from the hand of the experimenter, and could not be found; but, just before the third experiment with albumen on June 13, it appeared when the intestine was washed out. It was still full of coagulated albumen. The pieces were little changed in size and shape, but the edges were eroded, and under the microscope the albumen was found to be loaded with bacteria. It still showed the reactions of coagulated albumen; for instance, a violet colour was produced by treatment with sulphate of copper and potash. Thus, in spite of having remained two-and-a-half months in the intestine, the coagulated albumen was not essentially altered, and the changes which were present were ascribable to the action of the minute organisms which were found. There can, then, be no doubt that the large intestine does not exercise a digestive action on albumen.

Nor did albumen in solution show any change after remaining in the rectum. We must here remark that, as Subbotin has shown (*Zeitschrift für rationelle Medicin*, Reihe III., Band xxxii.), bodies are present in the filtrate of partly coagulated white of egg, which cannot be distinguished by any reaction from the so-called peptones. In fact, when submitted to qualitative analysis, these bodies showed nearly all the reactions of albumen; they gave the xanthoprotein reaction, Miller's reaction, and the reaction with sulphate of copper and potash. The remaining reactions varied with the different substances; in some cases, distinct turbidity was produced by adding a few drops of a solution of the alkaline salts of the blood. No essential differences were observed between the fresh solution of albumen and that of the fluid after removal from the intestine, except that in some specimens of the latter the reactions were more distinct and more readily produced. In order to be able to make as close a quantitative determination as possible of the above-mentioned albuminoid bodies, and for the purpose of the necessary comparison, advantage was taken of the action of absolute alcohol in producing a precipitate with most of them.

In order that the relation of these bodies to the coagulum might become readily evident, the weight of the coagulum and of the alcoholic precipitate was obtained, and the percentages of coagulum and of alcoholic precipitate were calculated. The numbers are given under the heading 'percentages of the collected precipitate' in the tables of the experiments. It was found that in fresh solution of albumen the coagulum varied between 86 and 90 per cent., and the alcoholic precipitate between 10 and 14 per cent. The coagulum and alcoholic precipitate of the fluid, after removal, varied between the same figures. In the experiments in which the solution of albumen was absorbed and the amount of alcoholic precipitate determined, slight oscillations were observed within the above mentioned limits. Thus, in the seventh experiment, on July 1, the proportion of the changed substances was less in the fluid removed than in that which had been poured in; in the latter they were 11.39 per cent., while in the removed fluids the percentage amounted to only 9.139. Again, in the fourth, fifth, and sixth experiments, in which, for reasons to be hereafter stated, there was no absorption, and which are therefore free from the objection that some of the peptones were absorbed, just the same relations were observed. In the fourth and sixth experiments, the percentages of the changed albuminoid bodies in the fluids were greater before their introduction than after their stay in the in-

* Translated from Virchow's *Archiv*, vol. lix. part 2.

testine; in the former, the percentage in the fluid introduced was 12.270, and in that removed 8.345; and in the latter it was 13.807 in the fluid poured in, and 11.690 after removal. The oscillations appeared to be dependent on coagulation; and the last named experiments, in which nothing was taken up from the intestine, show that even soluble albumen, when in solution, is not changed by the rectum or by its secretions.

Just as little does the rectum and its secretion possess an emulsive action on fat. In both the experiments the fat quickly came to the top and ran together in large drops, while the portion of the emulsion that had not been used retained its characters. Thus it was seen that the intestine had the property of again making the fat run together, which would not have been possible if the intestine and its secretion could make an emulsion of fat.*

In the experiments with starch, sugar was indeed found in the removed fluid in an experiment made on July 16; but the remainder of the paste, which had not been used, also gave slight evidence of sugar, though not a trace of sugar could be detected at the time when the fluid was poured into the intestine. Thus it is possible for sugar to be formed independently of the intestine and its secretion.

The human rectum and its secretion has no digestive action either on coagulated albumen, or soluble albumen, or on fat.

Experiments on Absorption.—To test the power of the intestine to absorb water, this fluid was poured in, in quantities of fifteen cubic centimètres, at first with an interval of half an hour; but at the second time a portion flowed out. A third and similar quantity was poured in at the end of an interval of an hour; but here again a portion escaped, and it was only when the intervals were two hours long that there was no escape. Two experiments were made on May 13 and 15. On May 13, at 10 a.m., fourteen cubic centimètres of water were poured in, at 12 noon thirteen cubic centimètres, and the same quantity at 1.45 p.m.; making in all forty cubic centimètres. At 6.30 p.m. a tube was introduced into the rectum, but not a drop appeared. In order to remove any possibility of error, twenty-eight cubic centimètres of water were poured in through the same opening, and twenty-five centimètres were at once removed *per anum*. On May 15, at 12 noon, nineteen cubic centimètres of water, at 1.45 p.m. fourteen, and at 4.45 thirteen, making in all forty-six cubic centimètres, were poured in. At 6.25, the tube was introduced into the rectum, and not a drop of water flowed out. As a test, two hundred cubic centimètres of water were poured in, of which one hundred and ninety-two escaped *per anum*. It hence results, that the portion of intestine operated on absorbed on an average from forty to fifty grammes of water in seven hours.

In order at least to estimate the error arising from the admixture of the intestinal secretion with the water used in washing out the bowel, the intestine, having been washed out on the previous day, had four portions of water, each sixty cubic centimètres, poured into it, and each portion was separately removed and its dry residue ascertained. The results in grammes for the respective portions were:—

| | | | | |
|-----------------------|--------|---------|---------|--------|
| Weight of water | 43.324 | 51.0035 | 59.3615 | 62.263 |
| Weight of dry residue | 0.1217 | 0.0952 | 0.0466 | 0.0304 |

Thus, of 240 grammes of water poured in, 215.952 grammes reappeared, with a dry residue of 0.294 gramme. The water which flowed out was turbid; and microscopic examination showed this turbidity to depend on threads aggregated in thick bundles, surrounded by masses of detritus. These threads were not of a fungoid nature; nor did they entirely agree with the constituent elementary tissues of the organism. These threads, causing the turbidity, were found in all the water that had been used for washing, both in the experiments with albumen and in those with fat and paste.

In the first three experiments on absorption with albumen, it was shown that this substance is absorbed in relatively large proportion; and in the first researches the percentages of absorbed albumen varied within comparatively narrow limits. From the solid residue, it was calculated that, in an experiment made on May 23, 70.869 per cent. was absorbed in 23½ hours; in a second, made on May 29, 61.455 per cent. in the same time; and in a third, made on June 14, 68.443 per cent. in 29½ hours. That only very small quantities remained in the intestine, was shown by the rapid decrease in the solid residue of the individual portions of water used in washing. Here, however, we must remark that, in both the first two experiments, the bag filled with decaying coagulated albumen was still in the intestine, and was washed by the water. In the third experiment, an irregularity was observed in the weight of the solid residue of the water, inasmuch as the third portion of water contained more solid residue than either of the two preceding. This irregularity depended on the circumstance that the bag of albumen already mentioned came to light on the day before the experiment, and probably some portions of the decomposing albumen had remained in the mucous folds of the bowel. In these three experiments, not a drop more of the fluid poured in appeared on introducing the tube through the anus. Thus, along with the remains of the albumen in the bowel, which was acted on by the water, so much water was removed that no more could flow out, but remained adherent to the intestinal wall. The result of the fourth, fifth, and sixth experiments was altogether different. The several columns in the tables gave negative results. On proceeding to subtract the amount of water that flowed out from that poured in, the figures were found to be negative, showing that more escaped than had been poured in, so that, in these three experiments, there was not only no absorption, but an increase of substance in the bowel. This glaring contradiction to the former two experiments was explained by the condition of the bowel. The intestine had been mechanically irritated by the preliminary measurements, and was consequently deeply reddened, its mucous secretion was much increased, while the patient at first, even when the intestine was empty, complained of frequent desire to defecate. These researches show how susceptible the bowel is of irritation, and that simple hyperæmia impedes or entirely arrests absorption. In the fourth experiment, made on June 17, 1873, ordinary solution of white of egg was used, and, on its removal from the intestine, it was found to be remarkably inspissated. While the solution of albumen that was poured in contained 5.990 per cent. of dry residue, the fluid that escaped showed 21.989 per cent. Water

* This property of breaking up emulsion, the secretion of the rectum probably owes to its alkalinity, which renders again soluble the insoluble soaps necessary for the formation of emulsion.

alone was removed from the solution. In the fifth experiment, on June 20, the conditions were altogether different. To the solution of albumen, 1·614 per cent. of chloride of sodium was added. On removal, the weight indicated the escape of more fluid than had been poured in : these quantities being respectively 61·561 and 63·314 grammes. To what this increase was due, was shown by the percentage of dry residue ; while the fluid poured in contained 7·178 per cent., that which flowed out contained 5·838 per cent. Thus the increase consisted chiefly of water. Here also, as has already been shown by many, the chloride of sodium had an irritant effect ; it increased the irritation, and water was excreted, while in the previous experiments water had been absorbed. That chloride of sodium increases irritation, was shown in the sixth experiment, made on June 25, in which only 0·489 per cent. of the chloride was added to the solution of albumen. The dry residue of the solution poured in was 5·579 per cent. ; that of the fluid which escaped, 22·163 per cent. Here again, with a small proportion of salt, water was again absorbed. The time occupied in the three last mentioned experiments was, in the fourth $7\frac{1}{2}$ hours, in the fifth $9\frac{1}{2}$ hours, and in the sixth 10 hours and 10 minutes. We must add some remarks on the peculiar relation of the chloride of sodium in the fifth and sixth experiments. While in both experiments albumen was not absorbed, and notwithstanding that the bowel showed hyperæmia and increased secretion, a large percentage of the chloride of sodium was absorbed. In the fifth experiment 70·114 per cent. disappeared, and in the sixth 71·895 per cent. That the impediment to absorption arose from the mechanical irritation caused by measuring the intestine, was shown in the next two experiments, which were carried out under the same circumstances and in similar periods of time, while the bowel had been allowed to remain perfectly at rest for five days previously. In the seventh experiment, on July 1, 16·588 per cent., calculated from the solid residue, was absorbed in $10\frac{1}{2}$ hours, although the intestine had not yet quite returned to its normal condition. In the eighth experiment, on July 7, 0·417 per cent. of chloride of sodium was added to the solution of albumen ; and here it was shown that, as in the previous experiments, the chloride impedes absorption ; only 8·190 per cent., calculated from the solid residue, was absorbed in $10\frac{1}{2}$ hours ; while 65·267 per cent. of the chloride of sodium disappeared. In the seventh and eighth experiments the fluid that had not been absorbed, and which escaped, was inspissated ; in the seventh experiment the solution poured in had 5·338 per cent. of dry residue, while the fluid that was removed contained 17·690 per cent. ; and in the eighth the amount of dry residue in the solution poured in was 5·028 per cent., in the fluid that escaped 14·842 per cent. The last experiment with albumen was made with eggs beaten to a froth and then allowed to again run together without any addition. While in all the other experiments the unabsorbed fluid removed from the bowel was very turbid, while the solutions of albumen poured in were perfectly transparent, in the experiment made on July 28, the unabsorbed fluid which escaped was nearly as transparent as that poured in ; further, the colour was just as yellow, and the consistence did not vary remarkably when compared with the former experiments. The dry residue of the albumen poured in was 11·905 per cent., of the albumen removed 12·503 per cent. ; the water used in washing, however,

was just as turbid as in the preceding experiments. Thus the fluid appears to be nearly unchanged in quality on its removal from the bowel ; it is, as it were, a fluid which does not allow mixture with the intestinal secretion. But it appears not only with the same quality, but also nearly in the same quantity. In $10\frac{1}{2}$ hours only 4·283 per cent., calculated from the solid residue, was absorbed, although the intestine was in a favourable condition for absorption, as was shown by the previous experiments.

Albumen is contained in the egg in a form unfavourable for absorption, and the sepimenta in which the albumen is enclosed appear not to be broken up by beating the egg to a froth. That the percentages derived from the dry residue indicate the albumen that has disappeared, is shown by the percentages derived from the coagulum that has disappeared, which are greater than those of the dry residue.

In the normal condition, soluble albumen (dissolved in water) is absorbed from the human rectum as such, not being changed by the intestine ; and a greater percentage is taken up, the longer it remains in the bowel. Any irritative condition of the bowel impedes absorption, or completely arrests it. Chloride of sodium also impedes absorption, but is itself taken up notwithstanding that the intestine is in a state of irritation and that absorption is suspended. In the hen's egg, albumen is contained in a form unfavourable for absorption.

In the ninth experiment, on July 11, and in the tenth, on July 13, it was shown that fat in emulsion is absorbed by the human rectum. In the ninth experiment, 15·294 per cent., calculated from dry residue, of a very concentrated emulsion of olive-oil was absorbed in $10\frac{1}{2}$ hours. In the tenth experiment, 31·342 per cent., similarly calculated, of a much more dilute emulsion, was absorbed in 25 hours. That fat was here absorbed, was shown by the percentage of fat that had disappeared as well as by the above figures. This shows, that the more concentrated the fluid is, the greater is the absorption of material in solution or in emulsion. In the ninth experiment, 3·017 grammes of a very concentrated emulsion were absorbed in $10\frac{1}{2}$ hours, while of a very dilute emulsion only 11·422 grammes were absorbed in 25 hours. The extraordinarily rapid decrease of the solid residue in the water used in washing the intestine, showed that it very completely removed the fat from the bowel.

Fat in emulsion is absorbed by the human rectum. The quantity absolutely absorbed is in proportion to the degree of concentration ; and the amount per cent. absorbed is in proportion to the time during which the fluid has been in contact with the absorbing surface.

In the experiments with paste, made on July 16 and 18, it was shown that this was absorbed. In the eleventh experiment, so much water was removed from the paste in the intestine, that not a drop of fluid appeared on introducing the anal tube. The water used in washing had an acid reaction ; the last portion only was neutral. All the portions contained starch, and showed traces of sugar. These were the only specimens of washing water which had an acid reaction, while those of all the other experiments were alkaline. This shows that any acid reaction of the contents of the intestines does not depend on the bowel itself or its secretion, but on its contents. In this experiment, 27·723 per cent., calculated from the solid residue, was absorbed in $10\frac{1}{2}$ hours. In the twelfth experiment, on July 18,

which was made with paste, not a drop of fluid appeared on introducing the tube into the anus. The portions of water used for washing had a neutral reaction; they showed no trace of starch or of sugar, but, on testing for sugar with potash and sulphate of copper, they gave a violet colour, indicating albumen. Thus all the starch which was poured in was taken up by the intestine, and not a trace of it remained—no lactic acid or sugar. The solid residue of the water used in washing the bowel consisted only of the detritus of the intestine.

Starch in the hydrated form is absorbed by the intestine; whether as such, or after being changed into sugar, is not decided by these experiments.

The greatest quantity of albumen absorbed in 29 hours was about $1\frac{1}{2}$ grammes. As the large intestine is on an average about four times as long as the portion which served for experiment, this indicates an absorbent power, in the whole large intestine, of 6 grammes of soluble albumen from a solution containing $4\frac{1}{2}$ per cent. This quantity is far from being sufficient for nutrition, as about 120 grammes are necessary for a healthy man (Voit and Bauer). The quantity of albumen absorbed is evidently increased when more concentrated solutions are used.

General Result.—The human rectum absorbs soluble albumen unchanged, as such; it also takes up emulsion of fat; starch also is absorbed, but it remains undecided whether it be absorbed as starch, or whether it must first be changed into sugar. Chloride of sodium impedes or completely arrests absorption.*

[To the paper are appended tables, showing the results in each of the experiments.]

MEDICINE.

LATOUR AND OLLIVIER ON MORBID SWEATING OF THE FEET AND ITS TREATMENT.—Dr. Debrousse Latour has lately published a thesis on local sweatings, in which the unpublished observations of M. Ollivier, of the Paris Faculty of Medicine, are incorporated with those of the author.

The forms of local sweating which offer the greatest number of interesting points are, according to Hebra, those which affect the armpits, the genital organs, the palm of the hand, and the sole of the foot. For the present, M. Debrousse Latour confines his remarks to the last-mentioned affection, which elevation of the temperature for the time being raises into a really insupportable condition of disordered function. The causes of this morbid perspiration are little known; it is not an attribute of the lymphatic temperament, nor always of a want of cleanliness; it is not contagious, nor does anything prove it to be

* This property is probably possessed by crystallised substances in general. Our patient's bowel, after a solution of sulphate of magnesia had been poured in, showed violent reaction for some days; it was strongly reddened, the mucous secretion was much increased, and shreds of mucus, containing abundant epithelial cells, escaped *per anum*. Even the peptones act as irritants, as has been shown by Bauer and Voit. This is the reason why so many clinical experiments fail, as only solution of uncoagulated albumen, without any addition, emulsions of fat, and starch, do not act as irritants and therefore can be borne for some time. Added substances, which irritate the intestinal mucous membrane, impede absorption, and later on arrest it.

hereditary. Its symptoms are well known, as well as the disagreeable accidents to which it gives rise.

The question arises whether it is prudent to accede to the wish of the patients who desire to be relieved from the annoyance of this affection. Without following the author through all his arguments, it will suffice to say that he agrees with almost the whole of the French medical profession in the belief that it is dangerous to suppress habitual sweating of the feet. 'Perhaps, however,' remarks Debrousse Latour, 'we must here draw a distinction between patients having a good constitution and those predisposed to pulmonary phthisis or phlegmasiæ of the respiratory organs.' In support of this judicious reservation, the writer cites the following fact, observed by M. Ollivier in the case of a medical student whom he treated.

M. X., aged twenty-one, had been troubled during two years with partial sweatings of the feet, of an extremely disagreeable character. In other respects he was in good health, and there was nothing abnormal in the action of the organic functions; the appetite was good, and thirst moderate. The local sweating was so profuse as to oblige the sufferer to change his socks several times in the course of the day, and it exhaled a fetid odour, although it was clearly of a watery nature. The skin of the feet was whitish, and, as it were, macerated. M. Ollivier, nevertheless, found no indication against treatment for partial hyperidrosis. He prescribed foot-baths with Barèges water, a preparation of iron, and cold douches. In two months the malady had disappeared, and the cure afterwards continued without any change in the health of the patient. The hygienic treatment of this morbid state in delicate patients consists in avoiding sudden cooling of the feet. The patient should wear stout shoes or boots and woollen stockings, which should be changed frequently. If, in consequence of chill, sudden suppression of perspiration be followed by any unpleasant consequences, the sudorific hypersecretion should be brought on again by the use of very hot foot-baths, and afterwards by wearing woollen socks covered with oiled silk, or even stockings sprinkled with chlorhydrate of ammonia mixed with quicklime, in the proportion of two parts of the latter to one of the former. As a means of diminishing the disagreeableness of excessive and fetid perspiration, the following disinfectants may be used with advantage; the solution of permanganate of potash (0.05 centigrammes of permanganate of potash to 250 grammes of water), or the solution of tincture of coal-tar (1 gramme tincture of coal-tar to 250 grammes of water). If the epidermis become softened by maceration, if it fall off, leaving the *rete Malpighii* exposed, and thus render walking difficult and painful, Hebra unhesitatingly recommends that the soles of the feet and the toes should be coated with a mixture of equal proportions of compound diachylon plaster and linseed oil, which should be melted before it is used; the excoriated portions should afterwards be covered with linen. So much as regards palliative treatment; but if the good constitution of the patient give warrant for more active measures, then lighter boots and thread stockings should be ordered, together with lycopodium, charcoal, and tannin powders.

M. Gaffard, of Aurillac, recommends allowing some drops of the following liquid to penetrate between the toes.

| | |
|-----------------------------|-------------|
| Red oxide of lead | 1 gramme. |
| Subacetate of liquor plumbi | 29 grammes. |

We have already seen how M. Ollivier succeeded

in effectively combating sweating of the feet with Barèges water and cold douches. Lotions with aromatic vinegar will also be found useful. Another means consists in spreading frequently in thin layers on the secreting parts clay softened in water and passed through a sieve. As to medicines given internally, and praised as specifics against general sweatings, such as the *Polyporus officinalis*, and the acetate of lead, MM. Ollivier and Debrousse Latour have arrived at the conviction that they are powerless against perspiration of the feet and other local sweatings.

RECENT PAPERS.

The Influence of Severe and Persistent Diarrhœa on the Development of Peritonitic Adhesions; with Remarks on Pleuritic Adhesions. By L. Traube. (*Berliner Klinische Wochenschrift*, nos. 4, 5, 6, 1874.)

On the Changes in the Quantity of Urine in Chronic Diffuse Diseases of the Kidneys. By Dr. V. Budde. (*Ugeskrift for Lager*, no. 7, 1874.)

A Case of Pseudo-Leukæmia with Intussusception. By V. Schepelern. (*Ibid.* no. 3, 1874.)

CLINICAL MEDICINE.

CHARCOT ON THE DIAGNOSIS OF HYSTERO-EPILEPSY FROM TRUE EPILEPSY.

M. Charcot, in a recent clinical lecture at the Salpêtrière, called attention to the traits which distinguish hystero-epilepsy from true epilepsy. In hystero-epilepsy, M. Charcot says, the attack is always announced previously by premonitory symptoms of rather long duration. In every kind of hysteria that can be called ovarian, these premonitory symptoms consist in an aura starting from the ovarian region, and reaching successively the epigastrium, the neck, and finally the head. These premonitory phenomena, so curious, and of an incontestable diagnostic value, are wanting in epilepsy; in epilepsy, the premonitory symptoms are sensations in altogether a different part, which ordinarily precede the attack only by a few seconds.

The cry of the hystero-epileptic at the moment of the fall is generally prolonged and modulated; it can hardly be confounded with the short cry of the epileptic. When the patient has fallen, the symptoms in the two affections are much alike; the head and eyes are turned in the same way, the limbs are taken with tonic convulsions; the whole body becomes rigid, the face congested, and a bloody froth flows from the mouth. But the differences soon reappear; at the moment when the epileptic is seized with a snoring which recalls the apoplectic stertor, the hystero-epileptic seems on the contrary to wake up, sometimes to return to the former condition, sometimes to offer a succession of symptoms making, in some way, a new period, which might be called the period of contortions. These contortions, sometimes very extraordinary and alarming, are very variable, and it can be said that in every patient, in spite of some traits in common, they are different. During this time, the hystero-epileptic seems to be affected by delirium, sometimes noisy, and which seems in a great part to give the contortions and attitudes and gestures an intentional character. To the contortions succeed, in the hystero-epileptics, delirium relatively quiet, one of the characteristics of which are hallucinations of the sight and hearing. They hear bells and voices, &c., they see every kind of animal, butterflies fluttering along the ceiling, lizards climbing

the walls, vultures coming to peck their faces; they try by gestures to escape from these imaginary beings; at other times they imagine themselves walking over serpents, and they give jumps to avoid them, &c.

This delirium, which at this point resembles in a certain degree delirium tremens, is quite different from epileptic delirium, which consists mostly in a maniacal excitement, accompanied sometimes with extreme violence, and of a gloomy character, which renders the patients very dangerous.

If it be a woman who is threatened by an attack, the nature of which is doubtful, compression on the ovary will contribute to clear up the diagnosis; if there be no effect, then one has to do with an epileptic; in the hystero-epileptic, though the ovary may be but slightly affected, it will produce, if not always a complete arrest of the attack, at least a modification more or less marked in the symptoms.

Sometimes, and this also in hystero-epilepsy as well as in epilepsy, the attacks are connected in a series, and produce in the one case a state of hystero-epileptic disease, in the other a state of epileptic disease. In these cases thermometry gives important assistance; in the epileptic in a state of disease the temperature rapidly attains a great height, 40°, 41°, and even 42° (Cent.), and death often closes the morbid scene; in the hystero-epileptic, in spite of the almost incessant repetition of the attacks of an extreme intensity, the thermometer marks 37.5°, 38°, and a few tenths. After 50, 100, and 200 attacks of hystero-epilepsy, the temperature is definitely the same as it was at the end of the first attack.

Besides the convulsive accidents there are, adds M. Charcot, other characteristics which facilitate the diagnosis. Epileptics are irascible, subject to impulses which make them dangerous; hystero-epileptics are capricious, fantastic, but are on the whole hardly dangerous. Vertigo, which is so frequent in epilepsy in the interval of the attacks, has not its representative in hystero-epilepsy.

The mental condition, which has already been treated by many authors, is seen in the end to be not different in the two diseases. The hystero-epileptics preserves those intellectual faculties which they had originally. One of the patients shown was in this respect the same as she was thirty years ago in spite of the persistence of the disease. The epileptic, on the contrary, if the disease be intense, loses his intelligence every day, and at the end of a time more or less short, he falls into a kind of stupor, which generally ends in true dementia. These principal distinctive marks, said M. Charcot, useful already to establish a nosographic demarcation, will suffice, in general, to separate clinically two affections of which the prognosis markedly differs.

CLINICAL SURGERY.

COLES, COLEMAN, AND OTHERS, ON THE MECHANICAL TREATMENT OF CLEFT PALATE.

A very interesting discussion is reported in the *Transactions of the Odontological Society of Great Britain*, vol. vi. no. 2, on the treatment of cleft palate by the use of various modifications of Kingsley's obturators. It is important to notice that, in the experience of the speakers, the mechanical is more successful than the surgical treatment of cleft palate.

Mr. Oakley Coles felt that the dentists of this country were under great obligations to Dr. Norman Kingsley for the amount of labour he had bestowed in bringing these moulds to so great a perfection. The form of his instruments was in some respects similar to an instrument invented by Stearn, an English surgeon, many years back; but to Dr. Kingsley was due the merit of constructing them in rubber. He (Mr. Coles) had had the opportunity of seeing some of Dr. Kingsley's earlier moulds; they were perfect pieces of sculpture, such as could only be produced by a master-hand. With reference to the precise form of instrument Mr. Turner had exhibited, he could not consider it of a novel character, as it was very similar to that which Mr. Ramsay had constructed and described—that, however, was a minor matter. With regard to the question of cheapness—at least for hospital purposes—it was quite possible to meet most cases by the ready-made plan. The cases of cleft palate after a time repeated themselves, so that it was quite possible out of a large stock to fit the majority of them; and having such a stock, he would be glad to place his moulds at the service of any member who might require a case in hospital practice. He felt they were not only indebted to Dr. Kingsley but also to Mr. Turner, who had exhibited to them a series of moulds the nearest to perfection he had ever seen.

Mr. Coleman would ask Mr. Coles, as his experience in the employment of those instruments had probably been longer than that of any other member present, whether there was any tendency to enlargement of the cleft after they had been worn for some time. It appeared to him the chance of this might be greater, when the instrument had not been made specially for the case. If there were any pressure upon the margins of the cleft by that portion of the instrument which might be termed the central portion of the stud, it appeared to him almost certain such a result would follow. When a very elastic substance like sponge was used, the enlargement was very considerable; and there was in the museum of St. Bartholomew's a preparation showing this in the case of a woman, who, having commenced with a small piece of sponge, ultimately employed a piece which might have done for the ordinary domestic purposes of washing. The soft rubber might to a small extent act like the sponge.

Mr. Coles, in reference to the remarks of Mr. Coleman, would observe that he did not think it so desirable as Mr. Turner appeared to, that the sides of the cleft should be accurately fitted; when it did fit closely you certainly did get a certain amount of absorption or irritation of the margins; whereas if the connecting portion of the two flanges were made smaller, you positively got in time a narrowing of the cleft. In a case where at ten years of age a surgical operation would have been hardly possible, at fifteen, after wearing it, it had become quite practicable to do so.

Mr. C. S. Tomes said that the observations of Mr. Coles reminded him of an important question connected with this subject not touched upon by Mr. Turner. The operation of staphyloraphy was at one time very largely performed at the Boston General Hospital, at the hands of Dr. Bigelow and others, but especially the former, and the hospital had so great a reputation, that cases were sent to it from all parts of America. There were some peculiarities in the mode of operation they adopted: thus the patient was laid on one side, with the head rather below the rest of the body, and the operation was performed under the

influence of an anæsthetic. By careful attention to a variety of details they attained the greatest surgical success possible; nevertheless, so good were the results of Kingsley's obturators, that the operation had been quite discontinued, not one having been performed during the last two years; and not merely this, but some of the cases which had been operated on were slit up again to receive Kingsley's obturators, because such infinitely better results as regarded speech and deglutition were thereby attained. With regard to the observations of Mr. Coleman and Mr. Coles, he did not think there was a likelihood of those evil results occurring under Dr. Kingsley's hands; for when that gentleman was fitting some of his instruments to plaster models to illustrate their adaptability to different cases, he observed that he invariably selected one smaller than that he (Mr. Tomes) would have considered suitable to the case. The impression left on his mind was rather stronger than Mr. Turner had put it in reference to the question of adaptability; he rather inferred from what Dr. Kingsley told him, that he would now prefer adapting an instrument made from an old model to constructing it from a new one, and he showed him a large number of them strung together ready for application to any but a very extraordinary case. He had the opportunity of seeing one of them put into the mouth of a patient for the first time. It produced very little irritation or discomfort, and improvement in the voice was at once perceptible.

Mr. West would like to ask Mr. Turner if he could give any idea of the durability of those obturators; they appeared to him so thin and flexible as to be likely soon to wear away in the act of deglutition.

Mr. Edwin Sercombe would venture to make one remark in respect to the comments of Mr. Coleman. He did not see how it would be possible for enlargement to take place in the fissure if the obturator fitted it accurately. If it impinged upon it, it no doubt would. The oldest case that he had had to deal with showed no such enlargement, although the instrument had been worn, fitted against the margins of the cleft, some twenty years. With a material like sponge, enlargement would rapidly take place. They all well knew how with cotton-wool they could separate the teeth; but with a material which did not sensibly expand, like hard vulcanite, he did not think there could be any fear if it fitted properly. That there should be no pressure upon the margins of the cleft he had laid down as most important in a paper on the subject read before the Society during the first year of its existence. He would like to ask Mr. Tomes what success had attended those cases in which Dr. Bigelow had slit up the velum united by surgical means. The results of the closure by surgical means had, according to his observations, been anything but successful in attaining the most important object in view; viz. a more distinct enunciation. This he attributed partly to the lessening of the oral cavity resulting from contraction of the cicatrices.

Mr. Tomes, in reply to the president, said that in one case he knew that a favourable result was obtained, but the velum was not slit up throughout its whole length. Both Dr. Bigelow and Dr. Kingsley spoke about the improvement effected in it. In another case it was slit up throughout its whole length, but with what result he did not learn.

MATERIA MEDICA AND THERAPEUTICS.

HASSE ON TRANSFUSION OF LAMB'S BLOOD INTO MAN.—Dr. Hasse, of Nordhausen, relates in the first part of a valuable and very interesting monograph, sixteen cases of mediate transfusion of venous defibrinated human blood, performed by himself during the years 1869-72. In the second part, he describes fifteen cases where he performed immediate transfusion from the carotid artery of the lamb to the vein of the patient during 1872 and 1873. The third part gives an account of his method of performing both mediate and immediate transfusion.

The first series of Dr. Hasse's cases show four cases with good results (phthisis, two cases of chlorosis, and one of marasmus of a child); ten cases with temporary improvement, but with death following at last (five cases of phthisis, one of pyæmia, one of amyloid degeneration, one of marasmus after dysentery, one of marasmus after enteritis, one after scarlet fever); and two cases where little or no improvement followed, but which did not die (anæmia following abortion and uterine disease). Cases of immediate death after the operation did not occur.

The second series contains fifteen cases where lamb's blood was injected by the immediate method. There are eleven cases of good, even surprising results (six cases of phthisis, one of anæmia after enteritis in a child, one of anæmia after placenta prævia, two of anæmia after puerperal disease, one of chlorosis); three cases where the improvement was only slow and less perceptible or temporary (one case of caries of the spine, one case of anæmia resulting from pneumonia and dysentery, and one of cancer of the stomach); and one case of tabes dorsalis, where death occurred four hours after the operation, with a rise of the temperature to 109° Fahr.

Respecting this one case of unhappy result, Dr. Hasse believes that in consequence of the severe disease of the nervous centres, transfusion would better have been avoided, but that the lamb's blood itself was not the cause of death. The success was most brilliant in those eleven cases of almost otherwise incurable diseases where the operation really saved the lives of these patients; and it seems that we have now in transfusion a very valuable means of treating of consumption, even in desperate stages. The general state of these patients soon improved, as well as the local symptoms.

Dr. Hasse thinks that the use of lamb's blood is preferable to that of defibrinated human blood, not only because danger to the blood-donor is avoided, but also because the effect of lamb's blood on the disease is more powerful and permanent. He lets pass over as much blood as the patient can bear, viz. till certain symptoms appear, which regularly follow this kind of transfusion.

During the first twenty to thirty seconds the patient has a warm feeling running up the arm. The veins begin to swell, the skin of the arms and the chest become red, and some perspiration may be seen on the face. Then dyspnœa sets in, and is followed by a feeling of fulness of the abdomen. Sometimes, sickness and an irresistible tendency to go to stool are observed. At last headache, giddiness, and fainting take place. All the patients complained of pain in the back, which lasted sometimes several hours, but sometimes disappeared very soon. In a time vary-

ing from ten minutes to an hour after the operation, shivering sets in, with a rise of temperature for several degrees. This is generally followed by perspiration and a sound sleep, from which the patient awakes in greater strength. In several cases the urine on the following morning contained albumen and hæmatin, which disappeared the same day; but he never found any blood-corpuscles. Some days later, in most cases, there was an eruption of urticaria.

The mode of operating employed by Dr. Hasse is simply as follows. He exposes the carotid artery of a lamb for four or five centimètres (about 1½ to 2 inches), puts a ligature round the vessel at the peripheral end, and inserts into the central part of it a glass tube filled with a solution of bicarbonate of soda, and fitted with an India-rubber tube from five to six centimètres long. Then he inserts a glass tube, also filled with the solution, into the vein of the patient. He draws off the India-rubber from the patient's tube, and, having seen that the stream of the blood passes well from the lamb, connects the two glass tubes with the India-rubber fitted to the lamb's cannula. Now transfusion is going on, and the proceeding is continued until the above-named symptoms show themselves, and till the oppression and dyspnœa indicate that the operation should be interrupted. He then applies two ligatures to the vein and cuts it, dressing the wound in an ordinary surgical way. He has never seen phlebitis after this mode of operating.

[From a private letter of Dr. Hasse, we know that he has enlarged the number of cases where he performed transfusion from a lamb since, and we can only congratulate him for having with such energy and success promoted this highly interesting object, in spite of the many difficulties of practice in a provincial town.—*Rep.*]

P. SCHLIEP, M.D., Berlin.

BUCQUOY ON THE CURE OF TUBERCULOUS ULCERATION OF THE TONGUE.—M. Bucquoy, at a meeting of the Société Médicale des Hôpitaux (*Bulletin de Thérapeutique*, January 15), reported the cure of a case of ulceration of the tongue, which, when presented to the society three months previously, had been recognised by all as of a tuberculous nature. The ulceration of the tongue was now healed, but the pulmonary mischief had considerably increased. The treatment had consisted of the application to the ulcer of very dilute tincture of iodine; the general treatment had been tonic and sedative.

BROUARDEL ON NUMERATION OF THE CORPUSCLES IN TRANSFUSION OF BLOOD.—M. Brouardel (*Bulletin de Thérapeutique*, January 15) gives an interesting report on a case of transfusion of blood in an individual dying of prostration from incoercible vomiting after swallowing sulphuric acid. 150 grammes of blood not defibrinated, taken from his house-surgeon, M. Landouzy, were injected into the vein of the arm. The immediate consequences were favourable, but in twenty-six hours a relapse occurred, and the patient died with hepatisation of the lower lobes of the lung. The necropsy showed ulceration of the pylorus. This observation showed this important point, that the application of M. Malassez's new method of numeration of the blood-corpuscles (*LONDON MEDICAL RECORD*, January 8, 1873) has allowed it to be ascertained that a rapid destruction of the elements of the blood occurs when the individual cannot repair the incessant losses of the economy; while, in an individual in good health,

repair is rapidly effected. Thus the patient had 3,200,000 red corpuscles in the cubic millimetre of blood; after the injection of 150 grammes of blood the figure was raised to 3,200,000; but thirty hours afterwards it was again at the previous figure of 3,200,000; while in M. Landouzy, who had lost 300 grammes of blood, the number of blood-corpuscles before the bleeding was 4,300,000, immediately after it 4,000,000, and twelve hours afterwards 4,100,000. M. Dujardin-Beaumetz related a case of obstinate anæmia, in which transfusion produced a temporary benefit, as in the above case, and was twice repeated when that effect had passed off; the amelioration after the third transfusion was, however, of very brief duration, and the patient died on the following day. The results of the enumeration of the corpuscles mentioned above gives a key to the transitory effects of transfusion in these cases.

LAUTH ON THE TREATMENT OF ASPHYXIA OF INFANTS BY THE INDUCED CURRENT.—Dr. Lauth (*Gazette Médicale de Strasbourg*, no. 19, Dec. 1873, p. 238) relates three cases of asphyxia of infants in which ordinary methods of treatment failed, while the employment of electricity led to complete success in one case and temporary success in the two others. He recalls the rules for its employment. He uses one of Gräfe's apparatus, and advises the practitioner to pass the dry reophores of the apparatus along the vertebral column and over the brachial plexus at its point of divergence, between the scapuli, along the external border of the sterno-cleido-mastoid muscle. He recommends also excitation of the mastoid-nerve. Each of these applications should be made for two or three minutes, and the intervals should be used for applying insufflation. He refers to Boer of Vienna (*Untersuchungen und Versuche geburtshilflichen Inhalts*, vol. ii. p. 15) as having first applied this method of treatment for the insufflation of newborn infants in 1791. See also Oppenheim's *Zeitschrift*, vol. xxv. p. 109 (1846); Scholz (1851); Gunzberg's *Zeitschrift*, vol. ii. p. 26-35, and Bæhr (1861) in *Monatsschrift für Geburtskunde*, vol. xviii. In France, Duchenne (de Boulogne), Onimus, and Le Gros, have advised this mode of treatment.

LUTON ON THE TREATMENT OF ALCOHOLISM BY NUX VOMICA.—Dr. Luton (*Mouvement Médical*, December, 1873), describes excellent effects from the use of nux vomica in chronic alcoholism, where the evil has not passed into the absolutely degenerative stage of tissue-change. In the tremors, cerebral disorder, and gastro-intestinal and thoracic disorders of alcoholism, he resorts with confidence to the use of extract or tincture of nux vomica in ordinary doses.

BESNIER ON THE COMBINATION OF OPIUM WITH CHLORAL-HYDRATE IN THE TREATMENT OF THREATENED ABORTION.—In the *Bulletin de Thérapeutique*, vol. lxxiv. p. 284, is summarised a case by M. Martineau in which uterine contractions occurring in a pregnant woman (seven months), treated unsuccessfully by opium, were immediately arrested by administration of chloral in the dose of 1 gramme night and morning. M. Besnier (*Union Médicale, Gazette des Hôpitaux*, no. 122), relates in connexion with this case, that of a primipara pregnant six months, and urgently threatened with abortion. Opium in high doses and under all forms not having produced any good effect, M. Besnier had recourse to chloral-hydrate in enema (2 grammes).

The effect was rapid and very satisfactory, and each time the pains reappeared they were set at rest by the repetition of the enema; but, as they did not finally disappear, M. Besnier, by advice of M. Tarnier, returned to the opiate treatment, which had to be continued for two days; it had no bad effect whatever, and the patient was saved from her threatened death. Investigating the mode of action of the chloral in these circumstances, M. Besnier concludes (with MM. Bourdon and Martineau), that chloral exercises different effects on the uterus, according as it is administered during accouchement or after a threatening of abortion. In the first case it augments, and in the second it diminishes, and, even suppresses the contractions. According to Besnier, the myosthenic or amyosthenic effects produced must severally be referred to the different conditions of the uterus at the time of administration of the chloral-hydrate. In accouchement there is to be considered the excitation of the cervix uteri by the head of the infant, which keeps up its contractions; these are even augmented as the consequence of the rest given to the womb by the cessation of pain, due to the administration of chloral. In threatened abortion, excitation of the cervix is absent: pain plays the chief part. Thus chloral suppresses the principal cause of the contractions. The whole importance of the drug lies in the analgesia which it produces. The action of the opium must also be taken into account in the case above cited. M. Besnier concludes that chloral is an excellent auxiliary to opium, when the latter proves inefficacious.

PELTIER ON THE USE OF TRIMETHYLAMINE IN THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM.—Dr. G. Peltier (*Progrès Médical*, nos. 12, 17, 19, 20, 22, and 25, 1873, and no. 2, 1874) discusses the whole of the recent observations on this subject (forty-eight in all), and analyses them. Taking them all together, it appears that of forty-eight cases treated by trimethylamine, twenty-two cases were cured in less than eight days, eighty-one in eight to fifteen days, seven in fifteen to thirty days, and eight have not appeared to be much, or at all, influenced by the treatment. He believes that no other therapeutic treatment can claim such results, and he entertains the conviction that trimethylamine will render henceforth still more marked advantages, when pure trimethylamine only shall be employed, or when only hydrochlorate of trimethylamine is used, a substance of which the dose is much more easily defined. His final conclusions are these. 1. From the point of view of its chemical action, it is preferable to employ in medicine the hydrochlorate of trimethylamine. 2. From the point of view of its physiological action, trimethylamine is a slight excitant of the skin, a caustic of mucous membrane, a sedative of the nervous system, hyposthenic of the arterial system; it diminishes the amount of urea in the urine. 3. From the point of view of therapeutic action, trimethylamine has hardly been employed in anything else than in articular rheumatism; it calms the nerves, relieves the congestion of the articulations, and diminishes the fever. On the whole, it appears to be the drug which, up to the present time, has given the best results.

FORMULARY.

SMITH ON A REMEDY FOR TOOTH-ACHE.—Dr. Q. C. Smith, of Cloverdale, writes.

'Having spent a number of years of my professional life in the country, where no dentist was

near, and therefore being often called to prescribe for tooth-ache, I tried many combinations of drugs, and many published formulas, with more or less satisfaction to myself and patients. But several years since I hit upon the following combination, which I have found better than any I have ever used, and it will give relief in almost all cases where such a remedy is applicable. Take of carbolic acid, saturated solution; hydrate of chloral, saturated solution; camphorated tincture of opium; fluid extract of aconite, of each an ounce; oil of peppermint, half an ounce. Mix. Apply by saturating a pledget of cotton (or preferably a small piece of sponge) and pack closely into the cavity of the decayed tooth.

PUBLIC HEALTH.

VÆLCKER ON MILK ADULTERATION.—Dr. Vælccker (*Pharmaceutical Journal*, March 14) writes on this subject as follows. Milk is a whitish liquid of an agreeable, sweetish taste, and faint but pleasant odour, depending in some measure upon the nature of the food upon which the cows are fed. It is essentially an emulsion of fatty particles in a solution of caseine and sugar of milk. The fatty matter is not contained in milk in a free state, but enclosed in little cells of caseine, which occurs also in milk in a state of solution, and is precipitated spontaneously as curd when milk gets sour. Viewed under the microscope, milk appears as a transparent fluid, full of small, round, or oval, and more or less angular bodies—the so-called milk-globules. When milk is left undisturbed for some time, these milk-globules rise to the surface, forming the cream of milk. Skimmed milk has a bluer colour, and is more transparent than new milk containing its full share of milk-globules or cream or butter-globules. The amount and quality of the food given to cows exercises a most remarkable influence on the quality and composition of milk. Besides this, the season of the year, distance from the time of calving, the breed and size of the cows, and several other circumstances which will suggest themselves to practical men, have a greater or less influence on the yield of milk and its quality. When residing at Cirencester College, with a view of ascertaining what may be the variations in the course of a year in the quality of milk on one and the same farm, I took samples of the milkings of all our milch cows, and analysed the morning's and evening's milk of the first or second day of each month. The milch cows were out at grass from May till the end of October, and, as the herbage then became so scarce as not to afford sufficient nourishment, they were fed in the evening at the stall on roots and hay, &c. It will be seen by the appended analyses that both the morning's and evening's milk in September were extremely poor. The poverty of this milk was therefore evidently due to an insufficient supply of food. The milk produced on two other farms in the neighbourhood during the same month, on being analysed, was found to contain $12\frac{1}{2}$ per cent. of solid matter, including $3\frac{1}{2}$ per cent. of fat (pure butter), and the same per centage of curd; showing that on both farms where the cows were supplied with a sufficient amount of nutritious food, the milk was of good quality, whereas on the College farm the scanty supply of poor grass had the effect of producing

poor milk, containing 90 per cent. of water, and only 2 per cent. of fat. The influence of food on the quality of milk was also clearly visible in the cows of the College farm. On account of the insufficiency of the grass, the cows were driven into the stall and there supplied with roots, hay, and meal. The milk became better at once, for the morning's yield then contained $12\frac{1}{2}$ per cent. of solid matter, and in this nearly 4 per cent. of butter. The concentrated food which the cows received in the evening was evidently made into good rich milk during the night. At this time the cows were put on grass early in the morning, and allowed to pick up what they could. This was not much, as their anxiety in the evening to be let into their stalls clearly showed. The influence of a stinted supply of grass was noticed at once in the poverty of the evening's milk. The percentage of solid matter fell to $9\frac{3}{8}$ instead of $12\frac{1}{2}$ per cent., and the butter to 3 instead of 4 per cent. I would direct especial attention to the fact that these analyses were not made with milk of a single cow, but that of the whole herd, and as the milch cows were kept entirely for the use of the College, there can be no question as to the genuineness of the supply.

COMPOSITION OF MORNING AND EVENING'S MILK PRODUCED ON THE ROYAL AGRICULTURAL COLLEGE FARM, CIRENCESTER.

| | | Percentage of | | | | | | |
|---------------|------------|---------------|--------------------|----------------------|-------------|------------------------|-----------|--|
| | | Water. | Butter (pure fat). | Caseine and Albumen. | Milk-sugar. | Mineral Matters (ash). | Nitrogen. | |
| January..... | Morning .. | 87.70 | 2.60 | 2.94 | 5.82 | .94 | .47 | |
| | Evening .. | 87.40 | 2.28 | 2.87 | 6.56 | .89 | .46 | |
| February | Morning .. | 87.50 | 2.58 | 3.44 | 5.44 | 1.04 | .55 | |
| | Evening .. | 86.40 | 3.53 | 3.37 | 5.56 | 1.14 | .54 | |
| March | Morning .. | 88.60 | 2.71 | 2.43 | 5.35 | .91 | .39 | |
| | Evening .. | 88.76 | 2.96 | 2.62 | 5.55 | .77 | .42 | |
| April | Morning .. | 87.50 | 3.15 | 2.94 | 5.60 | .81 | .47 | |
| | Evening .. | 89.00 | 2.47 | 2.69 | 5.08 | .76 | .43 | |
| May | Morning .. | 88.20 | 2.42 | 3.12 | 5.49 | .77 | .50 | |
| | Evening .. | 87.80 | 2.71 | 2.87 | 5.85 | .77 | .46 | |
| June | Morning .. | 87.30 | 3.05 | 3.00 | 5.89 | .76 | .48 | |
| | Evening .. | 87.30 | 2.94 | 2.87 | 6.05 | .84 | .46 | |
| July | Morning .. | 88.70 | 2.22 | 2.94 | 5.38 | .76 | .47 | |
| | Evening .. | 87.80 | 3.61 | 2.81 | 5.10 | .68 | .45 | |
| September.... | Morning .. | 89.91 | 1.99 | 2.94 | 4.48 | .64 | .47 | |
| | Evening .. | 90.70 | 1.79 | 2.81 | 4.04 | .63 | .45 | |
| October | Morning .. | 87.60 | 3.90 | 2.87 | 4.84 | .79 | .47 | |
| | Evening .. | 90.30 | 2.99 | 2.37 | 3.76 | .58 | .38 | |
| November.... | Morning .. | 87.10 | 3.41 | 2.94 | 5.41 | 1.14 | .47 | |
| | Evening .. | 86.20 | 3.78 | 3.19 | 5.68 | 1.15 | .51 | |
| December.... | Morning .. | 86.70 | 3.74 | 2.87 | 5.92 | .77 | .46 | |
| | Evening .. | 86.00 | 4.12 | 3.62 | 5.46 | .80 | .58 | |

I have alluded specially to these variations in the quality of milk as influenced by food, because some statements have lately appeared in a little work on milk-analysis, written for the special benefit and instruction of food-analysts, 'a new class of men,' which has lately been 'constituted to watch over the food of the country.' I leave it to you to form your own opinions from the following extracts taken from this treatise. According to the author, country milk of average quality contains in 100 parts by weight.

| | |
|----------------------|-------|
| Water | 87.55 |
| Fat | 3.08 |
| Caseine | 4.04 |
| Milk-sugar | 4.62 |
| Ash | .71 |

100.00

Town-fed milk, according to his analysis, contains in 100 parts by weight.

| | | | | | | | | | | | |
|------------|---|---|---|---|---|---|---|---|---|----|----|
| Water | . | . | . | . | . | . | . | . | . | 85 | 94 |
| Fat | . | . | . | . | . | . | . | . | . | 4 | 00 |
| Caseine | . | . | . | . | . | . | . | . | . | 5 | 02 |
| Milk-sugar | . | . | . | . | . | . | . | . | . | 4 | 31 |
| Ash | . | . | . | . | . | . | . | . | . | | 73 |

100'00

It will be seen that the latter milk shows a difference of one-third more of fat and one-quarter more than the amount of caseine contained in the former, and a corresponding smaller amount of water. These differences are sufficiently striking to show, at all events, that milk has not a uniform composition. Nevertheless, our author says, 'Milk exhibits great constancy of composition; the effect of variations in the diet of the cow showing itself in the amount of the secretion, rather than in its quality;' and again, 'As will be readily comprehended, this constancy of composition is a cardinal fact in milk-analysis. If milk were variable in strength, as urine is, chemical analysis would fail to detect the watering of milk. That milk is a secretion of constant, or only slightly varying, composition, lies at the very root of the subject of this treatise.' In the face of the evident contradictions between the facts given and the opinions expressed by this same author, I think I need not detain you by criticising other portions of the treatise, but leave you to draw your own conclusions as to the value of the frequent use he makes of what he calls 'normal milk.' One might as well talk of a 'normal potato,' or a 'normal cabbage,' or a 'normal pig.' On passing along on the top of an omnibus a short time ago, I was somewhat amused at seeing an advertisement of a wine-merchant of his 'standard sherry;' and I am surprised that standard or 'normal milk' is not advertised, as it might be with quite as much reason as 'standard sherry.' A great deal has been said and written about milk-adulteration. Sheep's brains, starch, chalk, and pipe-clay are said—on what authority nobody has ever decided—to have been found in milk; but the basis for these statements exists only in the imagination of credulous or half-informed scientific men, who, in want of more profitable occupation, take to book-writing. It would be difficult to understand where all the sheep's brains should come from; nor is it probable that chalk or other insoluble substances not easily kept in suspension, should be employed in adulterating milk. I have never found myself, nor have I ever met any chemist who has found, any of the clumsy adulterations often referred to in popular treatises on food. Milk adulteration resolves itself into one of two things—either the addition of water, or the abstraction of cream; and the question which naturally arises is: Can we detect to a nicety how much water has been added to, or how much cream has been abstracted from, a given sample? I have, perhaps, had as much experience in the examination of milk as anybody in England, and I fearlessly say that, owing to the natural variations in milk, it is utterly impossible in all cases to ascertain whether a small quantity of cream has been removed from milk, or an inconsiderable proportion of water has been added to it; and I further maintain that it is a reckless proceeding on the part of any analyst to assert that milk has been adulterated with exactly 8 per cent. of water, or with 13.75 per cent. of skimmed milk, as in one case, or with 16.25 per cent. as in another. Such assertions can only be made by young and inexperienced men, for whose special instruction such milk treatises as I have above referred to are compiled. No wonder that men who entertain

such inconsistent views of 'normal milk' should be led to give reports in which they positively assert that they have found 16.25 per cent. of skimmed milk, because the amount of fat did not come up to their standard by a few decimals. I may state, in passing, that in a recent case the milkman, who was accused of selling milk adulterated with 16.25 per cent. of skimmed milk, was fined in the 'mitigated penalty of 5*l*,' with the alternative of ten days in gaol. In the course of the trial testimony was given by a worthy town councillor, who had carried on business as a temperance hotel-keeper, that the accused had been known to him for the last twenty years, and had during the whole of that time supplied him with milk. He further expressed his opinion that no better milk was to be obtained than that of the accused, against whom he had never known any complaint. A well-known chemist, moreover, was called for the defence, and, on the strength of the analysis, he pronounced the milk to be of the quality of good ordinary country milk, quoting, in support of his opinion, no less an authority than the late Professor Johnstone, but apparently to no purpose, because the amount of fat contained in the milk differed in a trifling extent from what the food-analyst conceived to be the amount contained in 'normal milk.' A medical man, called in support of the prosecution, gravely stated that milk containing 16.25 per cent. of skimmed milk would be prejudicial to the health of the very young, although its effects would be hardly appreciable on an adult. Instances of this kind would be very ludicrous but for the serious consequences involved, and the injustice which, no doubt, is frequently dealt to honest dealers. Let it, however, be clearly understood that I have no intention of throwing cold water upon the system of chemically examining milk. All I desire to show by these observations is, that milk-analyses should be conducted by men upon whose practical experience and acquaintance with the subject reliance can be placed. Chemical analysis can do much in the way of revealing adulteration of food, and there is no difficulty in discovering whether milk has been skimmed or watered to any great extent. As the result of my own experience, I may state that milk may be considered rich when it contains from 12 to 12½ per cent. of solid matters, 3 or 3½ of which are pure butter. If it contain more than 12½ per cent. of solid matter and have 4 per cent. or more of fat, it is of extra rich quality. Such milk usually throws up from 11 to 12 per cent. of cream (by bulk) after standing for twelve hours at 62 degrees Fahr., and it has a specific gravity varying from 1.028 to 1.030. Good milk of fair average quality, as has been stated already, contains from 10½ to 11 per cent. of dry matter, including about 2½ per cent. of pure fat. It yields 9 to 10 per cent. of cream, and has a specific gravity of about 1.030. Poor milk contains 90 per cent. or more water, and has a lower specific gravity than 1.027. Such milk does not yield more than 6 to 8 per cent. of cream. Skimmed milk throws up still less cream, has a bluer colour, and is more transparent, and when undiluted with water has a slightly higher specific gravity than new milk. Good skimmed milk has a specific gravity of about 1.033, and poor skimmed milk 1.028 to 1.030. Milk purposely watered yields only 5 to 6 per cent. of cream, and invariably has a lower specific gravity than 1.025. If milk be both skimmed and watered, it yields less than 4 per cent. of cream, and possesses

as low a specific gravity as 1·025 to 1·026. A great many experiments have led me to the conclusion that within certain limits the specific gravity is the most trustworthy indicator of quality. Some of the objections to the use of hydrometers or instruments for taking with accuracy the specific gravity of milk, are based on the mistaken opinion that cream is lighter than water. This, however, I have ascertained, is not the case. Cream, I find, is lighter than milk, but denser than water, in the proportion of 1012, or even 1019 to 1000. The addition of cream, therefore, cannot depress the specific gravity of milk in the same degree as the addition of water. A low specific gravity thus always indicates a large proportion of water; at all events, I find that milk rich in butter is of a specific gravity a good deal higher than milk adulterated with even a little water. Some years ago, I made some accurate gravity determinations of pure milk before and after skimming, and of samples mixed purposely with 10 to 50 per cent. of water.

| | Sp. gr. at 62° Fahr. Before Skimming. | Sp. gr. at 62° Fahr. After Skimming. |
|-------------------------------|---|--|
| Pure milk | 1·0314 . . . | 1·0337 . . . |
| With 10 per cent. water . . . | 1·0295 . . . | 1·0308 . . . |
| With 20 per cent. water . . . | 1·0257 . . . | 1·0265 . . . |
| With 30 per cent. water . . . | 1·0233 . . . | 1·0248 . . . |
| With 40 per cent. water . . . | 1·0190 . . . | 1·0208 . . . |
| With 50 per cent. water . . . | 1·0163 . . . | 1·0175 . . . |

It appears from these results that good pure milk has a specific gravity of 1·030; skimmed milk being a little higher; and, further, that milk, having a specific gravity as low as 1·025, is either mixed with water or is naturally very poor. If the gravity should sink to 1·023 or less, it is unmistakably mixed with a considerable quantity of water. An useful instrument for approximately determining the percentage of cream is a graduated glass tube, at the top of which the cream may be allowed to collect, and its quantity may be read off. There can be no doubt about the fact that, before the late Adulteration Act, the milk of London was shockingly adulterated, and it was high time that a check should be placed upon the malpractices of milk-dealers. I am, however, anxious that the Act should not become ridiculous in the eyes of a discriminating public, for several recent milk-prosecutions have shown that the wisdom of the wise (food-analysts) in more than one or two instances is truly foolishness, even in the sight of any ordinary dairyman. I should advise rigorous prosecution in every case of flagrant or unmistakable adulteration; but whilst those entrusted with the enforcement of the Act draw the line so finely as they too frequently do at present, between pure milk and that which has been tampered with, serious mistakes must and will necessarily arise, to the discredit of all concerned in the matter, and sometimes, perhaps, to the irrecoverable loss of the reputation of an innocent man.

OBSTETRICS AND GYNÆCOLOGY.

OLSHAUSEN ON INCISION OF THE CERVIX UTERI. Professor R. Olshausen, of Halle (*Volkmann's Sammlung Klinischer Vorträge*, no. 67, 1874), considers incision of the cervix uteri, or, as he calls it, bloody (*blutige*) dilatation of the neck of the womb, a subject worthy of careful study, both because its employment is unavoidable, and because it may be dangerous if performed in unsuitable cases. Gra-

dual dilatation of the cervix is chiefly applicable to cases of pathological contraction of the canal. One has generally to deal with the relief of the milder or severer forms of dysmenorrhœa, or with the removal of sterility. Or, as indeed most frequently occurs, the two affections co-exist.

Dysmenorrhœa is divided into three kinds: that arising from mechanical obstruction, the congestive, and the ovarian. The 'gouty' and 'neuralgic' are considered questionable.

Bloody (*blutige*) dilatation is advocated only in that small class of cases under the division of obstructive dysmenorrhœa, where it is dependent upon the small size of the external os. Whether for relief of dysmenorrhœa or of sterility, the use of the knife is strongly deprecated in stenosis of the internal os, and in contraction of the cervical canal from some lesion of the mucous membrane. The operation may be followed with good results, not only where there is an absolute and distinctly pathological contraction of the external os, but also where the os is normal or nearly so. On account of the small dimensions and dilatability of the soft structures, it is exceedingly difficult to measure exactly the size of the external os, and to find out where the pathological narrowing begins. If the os be with difficulty discoverable by the finger, and if the sound, guided by a practised hand, repeatedly slip past it and at last enter with a jerk, it may safely be considered as pathologically contracted, and it is very rare to find this condition unaccompanied with dysmenorrhœa. The mere passage of an uterine sound, with a diameter of three or four millimètres, is not a proof that the os is not contracted.

If sterility co-exists with distinct mechanical dysmenorrhœa, we cannot err in assuming that there is a pathological contraction of the external os. When the removal of sterility is the object, we may even go further, and perform incision of the external os even when the mouth of the womb is quite normal. Even if a careful examination of the patient fail to detect any assignable cause for the sterility, conception may still be prevented, some unknown conditions co-existing with a normal degree of contraction of the os, which dilatation of the os might cure. The dilatation of the os by the first labour is favourable to subsequent conception; and this is further shown by the cases of women who have been sterile many years rapidly conceiving after the birth of the first child.

The assertion of West, that openings large enough to admit an uterine sound must be capable of transmitting spermatozoa, is disproved by repeated observations. How the semen enters the uterus, has not yet been made out. That conception may occur without complete sexual intercourse is true, in exceptional cases; but the conformation of the organs, the relation of the bodies one to the other, both in man and the higher animals, during the sexual act, clearly shows that the male organ should come into contact with the external os uteri.

Olshausen strongly disapproves of bilateral hysterotomes as dangerous in practice, although apparently perfect in theory. He recommends Marion Sims's blunt-pointed bistoury. The blade should be passed up as high as desirable, and a cut made from above downwards, first on one side of the cervix and then on the other. The external os should then be deeply divided, so as to leave a gaping slit. On this latter point he lays great stress, as the tendency for the parts to unite is very great. The lips are

best kept apart and prevented from uniting by tearing the adhesions down with the finger every twenty-four or forty-eight hours, and afterwards applying solution of perchloride of iron or the hot iron. Sponge-tents are condemned as liable to produce septicæmia. Laminaria tents are less objectionable. Before operating, care should be taken that no perimetritic inflammation is present.

In sterility, where there is slight antifixion with a concentrated external os, the ordinary lateral operation has seldom proved successful. The operation in these cases is modified by cutting a wedge-shaped piece out of the anterior lip.

In cases of severe catarrh of the uterus, it is advised to perform the bilateral operation, as the wider and larger the orifices are, the easier is internal medication; still, on account of the danger, it should be strictly limited to the most severe forms.

Finally, incision of the cervix must be accepted as an established therapeutical remedial measure, requiring, however, the greatest care in the performance and in the after-treatment. The author believes it is too frequently performed for trivial affections, and in a most reckless way. Such practice he can not too strongly condemn, as most unjustifiable.

WERNICH ON THE COURSE OF SEVERE LUNG-AFFECTIONS DURING PREGNANCY.—Dr. A. Wernich (*Beiträge zur Geburtshilfe und Gynäkologie*, vol. ii. part 3, 1873) believes, from his own experience, that phthisis runs a milder course during gestation; while the reverse is the case during the puerperal state. In acute pneumonia, the excess in mortality arises from the pressure of the gravid uterus on the diaphragm impeding the movements of respiration and retarding the circulation of the blood through the lungs, throwing more strain on the right side of the heart. In pneumonia, death takes place chiefly from insufficiency of the heart, and in pregnant women with the appearance of oedema of the lungs, according to Jürgensen (*Sammlung Klinischer Vorträge*, no. 45), emptying the uterus of its contents would, by relieving the pressure off the abdominal vessels, cause an increased flow of blood to the heart, coupled with the freer movements of the diaphragm, burden the right side of the heart still more, and augment the oedematous state of the lung. The treatment is to strengthen the contraction of the heart by the internal administration of digitalis, and unloading the right side of the heart by venesection, when the dyspnoea and distress are intense. The author relates two cases where he extracted blood; in one by venesection, in the other by cupping. In the first case (venesection) the relief was immediate, the patient falling asleep directly. In both it seemed to induce labour, signs of uterine contraction being present before the operation. Living six months' children were brought, by the aid of instruments, into the world. In the case of venesection the patient shortly afterwards collapsed and died. In the other, the patient wandered in her mind, saw strange figures, exhibiting the usual symptoms of mania from anæmia of the brain. Digitalis and stimulants were given with good results, the patient making an excellent recovery. In a third case, blood was not extracted; sinapisms and water compresses alone being used, with the administration of digitalis. The patient did well, without miscarrying. Seeing that extraction of blood brought on miscarriage, the object to be avoided, the question is, should it be done? The writer believes in all cases where the symptoms are very

urgent and not relieved by other treatment, the proper course is to bleed (Gusserow mentions a case where the result was good without bringing on labour); and in case of collapse, to transfuse blood from the arm of another. That both children were born alive, he wishes particularly to note.

LÖWENTHAL ON DISPLACEMENT OF THE UTERUS. Dr. Wm. Löwenthal (Heidelberg, 1872) maintains that all displacements of the uterus arise primarily from some change in the tone, either of the vaginal walls, causing versions, or of the structure of the uterus, producing flexions.

Versions arise from a relaxation of the opposite vaginal wall; anteversion from the posterior wall becoming slackened; retroversion, *vice versa*; and so with the other versions. The author proposes to cure these conditions by shortening this relaxed wall—Simon's operation of colporrhaphia. For the relief of flexions, the uterus is to be pulled down an inch, to allow the invaginated portion of the cervix to be compressed by the vaginal walls, being kept in position by means of a ring pushed over it. In an anteversion, the uterus is to be drawn down by catching hold of the posterior lip of the os and uniting the posterior wall of the vagina to the posterior wall of the uterus, so as to drag the uterus back—and so forth with the other flexions. The writer has not performed any of these operations on the living subject.

W. C. GRIGG, M.D.

HIGHMORE ON AN OVERLOOKED SOURCE OF BLOOD-SUPPLY FOR TRANSFUSION IN POST PARTUM HÆMORRHAGE.—Dr. Highmore, in a communication to the *Lancet* (January 17), refers to the occasional difficulty, especially in country practice, of procuring blood for transfusion in cases of *post partum* hæmorrhage, in which the only chance of saving life would be by performing that operation. Having narrated a case in point which proved fatal, and in which no 'blood-donor' could be found, he suggests that in similar cases the blood which the patient has lost should be collected, defibrinated, warmed to the proper temperature, and then injected. The editor of the *Irish Hospital Gazette* says, 'The suggestion to use the blood lost by a patient for transfusion purposes, is not a new one. In December, 1871, Dr. Robert McDonnell, at a meeting of the Dublin Obstetrical Society, alluded to the case of a man whose limb had been torn off, and who had arrived at hospital, after coming a long way from the country, exhausted from loss of blood, so that he sank two days after the operation of amputation. In such a case, Dr. McDonnell suggested that the patient's own blood, unavoidably lost at the operation, should be defibrinated, and then, after the operation, given back to him. Such a procedure would, we opine, be much more feasible in a surgical case than in a midwifery one, as the blood which is lost in cases of *post partum* hæmorrhage is usually exuded from the vagina in the shape of large, solid clots, in which the blood-corpuscles are entangled in the fibrin, forming masses which it would be difficult to liquefy, even with the addition of (to which Dr. Highmore has not referred) an alkaline solution.'

RECENT PAPERS.

Cases of Escape of the Liquor Amnii long before Delivery. By Dr. Bjerring. (*Hospitals-Tidende*, no. 2, 1874.)
A Case of Uterine Hæmatocele. By Dr. F. Villavecchia

(*Giornale della R. Accademia di Medicina in Torino*, nos. 1 and 2, 1874.)
 The Treatment of Puerperal Metrorrhagia. By Dr. L. Guin-
 toli. (*L'Imparziale*, no. 24, 1873, and no. 3, 1874.)
 On Intrauterine Medication. By F. Nyrop. (*Bibliothek for
 Læger*, vol. iv. part i. 1874.) [A copious summary of the
 literature of the subject.]

MISCELLANY.

SMALL-POX caused twenty-one deaths in Vienna in the week ending February 26.

PROFESSOR DU BOIS REYMOND lately received an invitation to a professorship in Geneva; he has, however, decided on remaining in Berlin.

DR. KÖSTER, Professor of Pathological Anatomy in Giessen, has accepted an invitation to the analogous chair in the University of Bonn, in place of Professor Rindfleisch, who goes to Würzburg.

We understand that Miss Elizabeth Morgan, M.D., one of the physicians at the Hospital for Women, Marylebone, is about to follow the example of her colleague Mrs. Anderson, M.D., by entering into the bonds of matrimony. Her future husband is a physician, by name Dr. Hoggan.

M. CRUVEILHIER, honorary professor in the Faculty of Medicine of Paris, and author of the well-known and excellent work on anatomy, died a few days ago at his residence near Limoges. He was eighty-three years old.

THE GERMAN SURGICAL CONGRESS will assemble in Berlin next month. A preliminary meeting for the purpose of formal reception will take place at the Hôtel du Nord on the evening of April 7, and the business will be transacted on the following four days. There will be a discussion on the treatment of wounds, with direct reference to Lister's method; and, if sufficient materials shall be at hand, there will be a series of communications on the return of cancer after removal. It is also proposed to have an exhibition of preparations, instruments, apparatus, &c., on a larger scale than has hitherto been the case.

CONTAGIOUSNESS OF SCARLET FEVER.—Sir Thomas Watson, Bart., M.D., writes to us:—I venture to ask whether it was prudent to republish, in the MEDICAL RECORD, the opinion of Dr. Snow, of Providence, Rhode Island, that scarlet fever 'is not contagious in the ordinary meaning of the word.' Surely the collective mind of the profession in this country has long been made up that genuine scarlet fever is *catching*; a popular word which comprehends any and every way in which that dreaded disease may be communicated from one person to another who has not already had it. To disturb this conviction in the minds of parents, schoolmasters, and inexperienced practisers of medicine would, in my judgment, be a most perilous mistake.

THE CHAMELEON.—M. Paul Bert has undertaken a very interesting series of researches on the mechanism of the changes of colour of the chameleon. They depend entirely on the action of the nervous system; by exciting emotions of fear, passion, avidity, he produced changes from black to yellow, blue, violet, and rose-colour, in very short space of time. These changes were not affected by arresting the blood-supply to a limb, but were immediately stopped in any part by dividing the nerve which supplies it. The complete independence of the two eyes (which is very observable in watching the chameleon), was tested by suddenly awakening it by a light held before one eye, when the corresponding side of the body immediately changed colour, each side of the body assuming another tint when it awoke in turn. The two luminous perceptions were different, and the difference of coloration shows the difference of the impressions on the nerve of sense.

THE ACADEMY OF SCIENCES IN PARIS.—The following examinations have been made for the vacancy in the section of medicine and surgery, caused by the death of M. Nélaton:—1. M. Gosselin; 2. *ex aquo*, MM. Broca, Demarquay, and Rochet. The eminent physiologists, MM. Marey and Vulpian, have also offered themselves as candidates, and a minority of the committee of nomination decree that their names should be submitted for election. The *Gazette Médicale de Paris* justly remarks that it is time to make an alteration in the arrangement which, however appropriate it was fifty years ago, is now no longer so, by which the only section open to anatomists and physiologists is that of medicine and surgery. At every election to the section there is a contest between the anatomists on the one hand, and the physicians and surgeons on the other. Physiology, or rather biology, ought to be represented in a special section.

HOUSEHOLD DISINFECTION.—Dr. M. J. MacCormack, Medical Officer of Health, for Lambeth, writes: With many of my brethren of the medical profession, I have seen with much pleasure in your columns, that it is proposed to work 'Baker's Patent Disinfectors' on a large scale in the form of a limited company.

I do not pretend to judge of the commercial aspects of the company, but to the sanitary results they will have it in their power to achieve, I can from actual experience confidently testify; especially, amongst others, I can refer to a public institution in this district, where for years there were several cases of epidemic disease, the result of the escape of sewer-gases, and where since, on my advice, the apparatus was fixed, there has been entire immunity from such cases.

I may further add that a manufacturer employing 200 hands in the neighbourhood of Cheapside, and who had repeated complaints from the local sanitary authorities, adopted the patent with the most satisfactory results.

The co-operation with the company of Mr. Ernest Hart leads me to hope that an energetic effort is about to be made in a practical shape to arrest and stamp out all those diseases the product of impure gases.

NOTICE.

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The London Medical Record.

WEDNESDAY, MARCH 25, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

WYMAN ON THE BRAIN OF AGASSIZ.

This remarkable man was so well-known for his intellectual labours, that all facts relating to the condition of his brain will have a peculiar interest. The *Detroit Review* takes the following from a report of the necropsy, by Dr. M. Wyman (*Medical and Surgical Reporter*, February 7). The walls of the skull were thick and heavy. The dura mater was very adherent to the skull, and remarkably thick. The veins of the arachnoid were thickened. The cerebral sulci were deep and wide. There was extensive disease, calcification and atheromatous degeneration, of the arteries at the base of the brain. The basilar artery was the continuation of the left vertebral, the right vertebral being represented by an exceedingly small vessel which united the basilar with the inferior cerebellar. In the left vertebral artery, one-half inch below the anterior edge of the pons Varolii, was a reddish yellow opaque friable plug completely obstructing the vessel; still lower, was another more recent plug. The first was one-quarter of an inch long, the second four inches. The weight of the entire brain was 53·4 avoirdupois ounces. Allowing one ounce diminution in weight of the brain for each ten years after thirty-five, the greatest weight of Agassiz's brain may be estimated at 56·5 ounces. It will be of interest to compare this weight with that of some other brains. We take from Flint on the nervous system the following facts.

Cuvier died at sixty-three, his brain weighed 64·33 ounces; Abercrombie died at sixty-three, his brain weighed 63 ounces; Ruloff died at fifty-three, above medium stature, executed for murder in 1871, well versed in several languages, his brain weighed 59 ounces; James Fisk died at thirty-seven, illiterate, but said to have had great executive ability; his brain weighed 59 ounces. A boy, thirteen years old, died from injuries caused by a fall; his brain weighed 58 ounces. He had been a very healthy and intelligent lad (*British Medical Journal*, October 19, 1872). In the same journal, December 24, 1872, Dr. Tuke reports the brain of a congenital epileptic idiot as weighing 60 ounces. The skull was unsymmetrical, and the cerebellum deformed. In the same journal, October 26, 1872, Dr. Morris reports the heaviest recorded brain. It exceeded 67 ounces. It was taken from a man who died of strangulated hernia. The man was thirty-eight years old, robust, and a bricklayer by profession. He was 5 feet 9 inches high; was fond of drink, had a good memory, was fond of politics, but could not read or write. From this short list, it will at once be apparent that mere size or weight of brain does not necessarily indicate the intelligence of its possessor.

STEARNS ON THE TREATMENT OF FRACTURES.

Dr. J. H. Stearns, of Milwaukee, writes as follows in the *Detroit Review* for February, 1874.

Many ingenious contrivances have been invented to keep fractured limbs in position during the forty days and forty nights required to form a provisional callus and render artificial support unnecessary.

I long ago discarded the use of weights or pulleys, screws or springs, for purposes of extension in fractures, and have come to consider them as instruments of torture, and altogether useless if not positively detrimental. In the hospital where I now am, I have had as many as six fractures at one time, every one of which, except a fractured clavicle, was treated by compression alone.

Allow me to describe, in a few words, the treatment and dressing for a fracture of the middle of the thigh. Four pieces of wood, say three-eighths of an inch thick, are cut as long as can be applied without involving the protuberances at each end of the shaft, each a little less in width than one-fourth of the circumference of the limb, and tapering to conform to the shape. These are padded with wadding secured by a roller bandage.

Let an assistant hold the limb, as near in its normal position as may be, place a splint under, one on each side, and one on top of the limb; with a tape, passed around in a loop, tie at the centre, another at each end, two more between; by this time you can tighten the centre one, then the ends, and so on, until by reducing the size of the limb, it corresponds in length with its fellow.

No pulling is necessary, but the fragments readily come into apposition; and if the lower fragment be held in proper position, the fracture is thus painlessly reduced—you then have the limb under the most complete control—if it swells, as it always will, you can loosen the tapes with no bandages to unwind. It is never required to have it tied so tight as to impede the circulation; and, if care be exercised during the whole time to have just pressure enough to keep the limb extended, little discomfort is experienced by the patient, and a good recovery results with the smallest amount of shortening.

The same plan applies equally well to the leg or arm. This method is presented not as a theory, but as the result of actual practice.

As to fractures of the clavicle, no person can bear a pad in the axilla, as a fulcrum, with the humerus as a lever. The indications are to carry the shoulder upwards, outwards and backwards. This is easily accomplished by placing the hand of the injured side on the sound shoulder, and placing a broad bandage around the neck and the point of the elbow.

TOXICOLOGY.

ON POISONING BY VANILLA-ICE. BY DR. L. ROSENTHAL.*

I come before you with the open confession that, in spite of all the trouble I have taken, I have not succeeded in solving the problem of poisoning by vanilla-ice. The chemical investigations carried on

* Read before the Berlin Medical Society. (*Berliner Klinische Wochenschrift*, March 9, 1874.)

under my direction, by order of the president of police, by Dr. Schädler, have shown that the hitherto most current and plausible hypothesis—that the poisoning is to be attributed to cardol—is untenable; but experiments which I have made in conjunction with that gentleman on rabbits and cats, have had a negative result. We fed the animals with decoctions both of the pod and of the pulp of vanilla; we repeatedly administered to them vanilla-ice obtained from the Vienna *café*: in all cases, the animals subjected to experiment remained healthy, and showed no condition varying from the normal state. Under these circumstances, I have thought it my duty to bring the subject before this Society, hoping that my communication will be followed by a discussion, by which some light will be diffused over the obscurity in which poisoning by ices has hitherto been shrouded.

In my opinion, poisoning by vanilla-ice is not so very rare as is generally assumed, especially when we consider that vanilla-ice is not one of the articles of food in every day use. Cases of poisoning of this kind were, within my knowledge, first observed and described by Orfila, in Paris, more than twenty years ago; and in that city cases of poisoning by ices have repeatedly come under notice from time to time. Similar observations have been made, in some other places on several occasions—in Vienna, in Munich, in Leipzig, in Amiens, in Erlangen, Altona, and Bergen. Here also, in Berlin, cases of poisoning by vanilla-ice have occurred more than once; but whether they have been described, I am not aware.

All these cases of poisoning have this peculiarity, that they always have one starting-point; all, or, I will say, nearly all the persons, who at a certain time eat vanilla-ice in a certain *café*, become ill; while other persons in another place do this with impunity. Here in Berlin, in the last days of August, 1873, an endemic of this kind prevailed; all the persons, who at this time ate vanilla-ice in the Vienna *café*, suffered from more or less severe symptoms. I was in the position of being one of the first to observe the cases of illness, and to trace them to poisoning by ice.

Allow me to relate my first observation somewhat in detail, as I shall be thereby enabled to set forth the symptoms, the duration of the illness, &c.

During the night of August 26-27, I was called to a family, in which I was attending one of the daughters in the last stage of phthisis; I had visited on the evening of the 26th. With the exception of the consumptive patient, all the family, consisting of the father, mother, and two other daughters, were in perfectly good health. The messenger told me, that nearly the whole family had cholera. Even though, as you know, cholera was prevalent here at the time, the simultaneous and sudden attack of the whole of the members of a family was rather extraordinary; and the next idea that occurred to me was, that it was a case of poisoning. On inquiry, I was informed that the patients had eaten ices in the *café* in the evening. As, so far as we know, it is only vanilla-ice that causes poisoning, I made inquiries as to whether they had taken vanilla-ice, and found that they had done so. In this way, I entered the sick chamber with a diagnosis already surely made.

The mother and one of the daughters had each eaten a portion of vanilla-ice about 10 p.m. They had taken a third portion home, and had divided it into two equal parts. Of one of these the father ate two teaspoonfuls, and gave the remainder to his consumptive daughter; the third daughter ate the other

half; and a little old dog licked the one plate that was used. All the members of the family, including the dog, were taken ill during the night. At 11 p.m. the eldest daughter began to vomit, and violent diarrhoea soon afterwards set in; half an hour later, the same symptoms showed themselves in the mother, and the remaining members of the family followed. It is to be observed, that only the two healthy daughters slept together in the same room; all the other patients had separate bed-chambers. On the whole, the severity of the symptoms was in proportion to the quantity of the ice taken; so that the mother and eldest daughter suffered most; the father least. He had vomiting and diarrhoea twice only; then followed the phthisical daughter, and finally the third daughter and the mother. As no notice was taken of the dog during the night, I cannot say when the symptoms of disease began in it; but the next morning we found the room extensively soiled with vomited matters and fæces, and the symptoms continued through the whole of the next day. The animal refused food, did not come when his master called him, and showed by his behaviour that he was in great pain. The evacuations on the second day consisted mostly of whitish mucus.

I return now to the human subjects. The symptoms in the mother and one of the daughters were so violent, that they nearly completely assumed the form of cholera. Vomiting followed vomiting, stool followed stool. To these were added violent cramps in the calves of the legs, coldness of the extremities, lividity of the limbs and of the face, and the pulse could hardly be felt. Under these circumstances, I am not surprised that other colleagues, who had not the opportunity of observing these cases of illness in the greater number of members of a family at the same time, have diagnosed the disease to be cholera or cholerine. I will, however, remark that, both those who were most severely attacked had violent gastralgic and enteralgic symptoms, and that the pupils (as also in the other cases which I have observed) were moderately dilated, and were slow in responding to the stimulus of light.

The duration of the illness was greater or less according to the severity of the symptoms. The mother was quite well, with the exception of some weakness, on the fourth day.

The prognosis, from the observations already made, was favourable; for, hitherto, no case of death from poisoning by vanilla-ice has come to our knowledge.

In the same night, several quite similar cases occurred. I will here briefly relate those which have come to my knowledge. Herr Güterbock, senior, was kind enough to send me one of his patients after recovery. He and his wife had suffered from the same symptoms as have been described above. It is remarkable, however, that this gentleman suffered for some time from a painful sensation as of burning, in the mouth and throat. In these parts, a number of red and inflamed spots were seen on the third day; and, at the time, I was inclined to attribute them to the action of cardol, which, according to Schroff, acts even more energetically than cantharidin. This observation in the meantime stands alone; in the other cases I observed nothing of the kind.

Three other cases were observed on the same night by Herr Riedel, in a family which had eaten vanilla-ice. As, however, Herr Riedel declared the patients to be suffering from cholera, and at the

present day asserts that this was the disease, I will make no further comment on his cases. The patients recovered.

A day later, another case came under my observation. The patient had eaten some ice about 2 p.m., after his dinner; at 5 o'clock he was taken ill, but recovered the next morning. Finally, two other cases came to me in the night of September 1 and 2.

Similar cases were communicated to me by Messrs. B. Fränkel, Steinauer, Danziger, O. Simon (who himself was poisoned), J. Meyer, Citron, and Oppenheim. Besides these, I have heard of a number of cases through the public; among them I will mention a family in the Chausseestrasse, of which all the eight members were taken ill in one night.

It would be interesting to determine how many persons altogether became ill at this time from vanilla-ice, and how many escaped in spite of its use. In the meantime, this remains a *pium desiderium*. The discussion will perhaps afford some further information.

I come now to the question: Wherein lies the source of poisoning by the use of vanilla-ice? We may here reasonably take three possibilities into consideration. The symptoms may be caused: 1. by cold; 2. by the materials constituting the frozen substance; 3. by other injurious substances accidentally introduced.

Regarding ice as such, we know well that its use may be followed by gastric catarrh and other slight stomach disorders, but it is not known that symptoms resembling those of cholera follow its use. Further, the following fact is opposed to this idea. Symptoms like those which I have already described have never yet been observed to follow the use of fruit-ices; and among cream-ices it is, as far as our knowledge extends, only vanilla-ice that has produced symptoms of poisoning.

I here beg leave to remark, in passing, that fruit-ice is prepared with sugar and the acid of lemons, to which the desired fruit-juice is added; while, in the preparation of cream-ice, eggs and cream are used, and the flavour is given by adding vanilla, chocolate, &c. Besides these, the various kinds of cream-ice are boiled before being introduced into the freezing vessel, which is not the case with fruit-ice.

While we must exclude the cold mixture as such from suspicion as the cause of the severe symptoms of poisoning, we succeed no better when we take into consideration the materials accidentally introduced into the ice. The most careful chemical examinations have given the following results. Most frequently (as in our case) traces of lead are found, now and then more or less iron, and in two cases there were not inconsiderable quantities of tin. As we may exclude the lead and iron (the former on account of its small quantity) from suspicion as the causes of illness, there remains only the tin; and, in fact, Green, who made a chemical examination of the ice which led to poisoning in Altona, has expressed the opinion that the tin combines with the lactic acid formed from the cream, forming a lactate of tin, which acts as a poison on the organism. The experiments, however, which Maurer of Erlangen has made with tin on animals, have shown the complete harmlessness of this metal. I will finally remark on this subject, that in our case the vessels used in the preparation of the ice were found to be in a faultless and thoroughly clean condition. The ingredients were boiled in well tinned copper vessels, and the

freezing was carried on in clean porcelain cylinders.

With regard to the materials used in the preparation of the ice, I have already mentioned the milk. Whether eggs can give rise to symptoms of poisoning is unknown to me; and thus we come to the only remaining possibility, that the poisonous agent is contained in the vanilla-pods. Up to the present time, we cannot furnish certain evidence on this point. The idea is opposed by the fact that, though vanilla is extensively used in the preparation of tea and chocolate, as well as of sauces and soups, which only differs from vanilla-ice in containing greater quantity of milk and in being of a higher temperature, the use of these has never been observed to be followed by symptoms of poisoning. We cannot regard any of the substitutes for vanilla, such as balsam of Peru or storax, as the vehicles of the poison, since in all the known cases it was really vanilla that was used in the preparation of the ice, and neither Peruvian balsam nor storax can be reckoned among poisons.

I must on the other hand mention a circumstance, which in my opinion gives incontestable evidence that the poison is contained in the vanilla-pods. Cases of poisoning by vanilla-ice occurred in a confectioner's shop in Altona. The proprietor of the shop was in consequence obliged to give up his business; the vanilla-pods in his store went into the possession of a confectioner in Bergen—and the ice made with these pods proved to be poisonous.

I now hold, with many others, the opinion that the symptoms of poisoning produced by vanilla-ice must be placed to the account of the vanilla-pods; but the endeavours to ascertain the poisonous agent have hitherto been in vain. Martius believed that he had found it in the crystals covering the pods, since he observed, that the pods gathered in the East Indies were covered with crystals of a different shape from those on the pods imported from Mexico. In our case, the pods had no crystals at all. Schroff, who had occupied himself with the subject most thoroughly, has put forth three hypotheses, of which he holds the first to be most probable. 'In Columbia,' he says (*Lehrbuch der Pharmacognosie*, 2nd ed., 1869), 'the pods are greased with the fatty oil from the seeds of the *anacardium occidentale* (cashew-nut) and dried in the sun. As a very acid juice is contained between the endocarp and ectocarp of this fruit, it is possible that, in preparing the oil from the seeds without sufficient care, this, and the vanilla-pods over which it is rubbed, may become contaminated with the acid juice; and that in this way the occasional occurrence of poisoning after the use of vanilla-ice may be explained in these cases, where no other injurious condition can be ascertained.' In another place (*Wiener Medizinische Wochenschrift*, no. 82, 1863) he says that experiments on rabbits with cardol prepared from this oil have shown that it is capable of producing the symptoms observed in patients.

Setting aside the fact that other observers make no mention of the rubbing of vanilla-pods with the cashew-nut oil, Schroff does not show that the cardol used in the experiments was derived from vanilla-pods. Thus his hypothesis loses probability; and Dr. Schädler has been informed that there was no cardol in the vanilla-pods obtained from the Vienna café.

The second hypothesis which Schroff put forth, and to which he himself attached little weight, is the following. In the vanilla-fruits, on careful micro-

scopic examination, there are found in the parenchymatous cells of the mesocarp packets of sharp-pointed needle-shaped crystals, which were very large in the vanilla used in preparing the ice in question; and, according to Soubeiran, they act like nettles on the skin. These must act as mechanical irritants; but in the ice examined, they were always in a broken-up condition.

Finally, whether any of the fatty acids formed under certain circumstances may be the cause of the poisoning, must remain undecided—as yet, there is no proof of such a cause.

In conclusion, while I thank those who have assisted me by contributing facts and by searching through the literature of the subject, I must guard myself against being supposed to advance a new hypothesis. I abstain from this the more, as the necessary knowledge is wanting to me. But there is one thing to which I may direct attention. Not to mention that the various kinds of vanilla differ much in quality, I have found it stated by Schroff alone that the pods are gathered when ripe. All other authors state that they are gathered in the unripe state, and prepared in many ways for use. I here add what Henkel (*Handbuch der Pharmacognosie*, Tübingen, 1867) says, from Von Müller's travels in Mexico. He first describes vanilla as the dried unripe capsules of the *Vanilla planifolia*; then gives the following account of its preparation. 'The Indians of Misantra collect the vanilla in the mountains and forests of Quilates; the fresh capsules contain an acrid viscous juice, which protects them against insects. The Indians, who only betake themselves to the forests for eight days at the time of the gathering, often sell the raw fruit to the colonists, who then prepare and dry them, and tie them in bundles for sale. In Misantra, the most usual way of drying the vanilla is to spread the shrivelled yellow fruit on linen in the sun for some hours. When the pods are sufficiently heated they are wrapped in woollen cloths, where they soon assume a dark copper colour; they are then exposed to the sun from morning to evening until they are dry. When the use of the sun is prevented by continued rain, artificial heat is employed; frames are made of reed or bamboo, which are suspended by cords at the four corners and covered with woollen cloths, on which the capsules are spread. These frames are swung over a fire which does not smoke, until the pods are dried. . . . In the State of Oaxaca the natives dry the vanilla by piercing the capsules all over with needles, so as to allow the escape of the viscous juice.'

Flückiger (*Lehrbuch der Pharmacognosie des Pflanzenreichs*, Berlin, 1867), expresses himself in a similar way, though not with so much detail. 'In the second year, the fruit buds ripen into an entirely non-aromatic pod-shaped fleshy capsule, with a viscous milky juice, and opens longitudinally in two unequal valves. It is not allowed to become fully ripe, but is collected when its green colour is beginning to pass into brown, and is dried, according to some accounts, in a very elaborate manner, inasmuch as it is subjected to heat either exposed, or wrapped in woollen cloths; under this treatment it ripens, and first develops the aroma and the favourite dark-brown colour of the commercial fruit.'

From these statements, is it difficult to imagine that in some of the pods—and, as far as we know, it is only individual pods that are poisonous—the process of artificial ripening is not complete, and that it is the unripe pods which produce the symptoms? I

content myself with having called attention to this question. May those who are more skilful decide it!

[The reading of Dr. Rosenthal's paper was followed by a discussion, a report of which is given in the *Berliner Klinische Wochenschrift* for December 22, 1873.]

Dr. B. Fränkel said that, as his name had been mentioned, he would give fuller information on the cases of poisoning observed in his family. Several persons were taken ill, nearly in the proportion in which they had partaken of a certain dish. The symptoms were those of vanilla-poisoning, such as had just been described by Dr. Rosenthal. One person alone of the household, who did not eat any portion of the dish, remained unaffected. The dish in question was a warm farinaceous preparation, to which vanilla was added in preparation. It was made in a porcelain vessel, and was so simple in composition, that the illness could only be attributed to the vanilla. He had given to Dr. Liebreich for examination some vanilla-pods, obtained from the same dealer, and taken from the same packet as those which produced the poisoning.

Dr. Veit said that, in the nights of August 28 and 29, he observed a case of poisoning with vanilla-ice. He took special notice of the fact, because a female friend of the patient (a woman) who had eaten of the same ice, was taken ill with similar symptoms. The symptoms were those of cholera, but the gastric pain was of longer duration, and recovery slower.

Dr. Kalischer on the same night saw a similar case of illness in a lady who had eaten some ice in the Vienna *café*. One of her children also ate of the ice, but was not ill. The symptoms were very severe, and the consequent prostration lasted several weeks.

Dr. Henoch was able to give particulars of a former series of cases of poisoning, in which he was one of the victims. At an evening party there were various ices, obtained from one of the first confectioners in Berlin. Dr. Henoch ate some vanilla-ice; and four hours later was taken ill. His evacuations were colourless, and quite resembled those of cholera, which was not epidemic at the time. On the other hand, he had no pain in the stomach or bowels, a circumstance which spoke against metallic poisoning. In the same night, a young girl and fourteen other persons of the same party were taken ill with similar symptoms; they had all eaten vanilla-ice. Those who ate other ices were not attacked. In his own case, the diarrhoea lasted four hours; no changes in the pulse or in the temperature were observed. On applying to the confectioner, he was assured that vanilla-pods of the same kind had been used for some months without producing poisoning. The pods shown to him were abundantly covered with crystals. It was remarkable that the symptoms were specially severe in those persons who had eaten the portions of ice nearest to the containing vessel; especially the servants, who scraped it to obtain the portions of ice that adhered to it. In these the symptoms were so severe that death was feared. This circumstance appeared to indicate metallic poisoning.

Dr. Schiffer remarked that, in consequence of the high price of the vanilla, it frequently underwent falsification in trade, especially by the substitution of other pods like those of the vanilla. The possibility of poisoning from this source must be borne in mind.

MEDICINE.

BETZ ON A CASE OF VOLVULUS, TREATED BY (EXTRA-PERITONEAL) ABDOMINAL SECTION; BREAKING DOWN OF A FALSE LIGAMENT BY MANIPULATION; RECOVERY.—This interesting case will be found in detail in Betz's *Memorabilien*, vol. xviii. p. 493. The author, Dr. Friedrich Betz, insists strongly upon the importance of a careful examination of the abdomen by percussion and palpation, as soon as we are called to a case of intestinal obstruction. When this is done at an early date, we can generally learn the most tender spot, and the starting-point of the symptoms of obstruction. This information is of great value, not for mere diagnostic purposes, but as a guide, should we subsequently determine upon operation. If called too late, or if we defer this examination too long, it is very difficult, if not impossible, to determine either the site or the kind of the obstruction with which we have to deal, or to feel justified in recommending an operation. Of late, very great progress has been made in the differential diagnosis of cases of internal obstruction of the bowels; and it is to be hoped that abdominal section will be done more frequently, and at earlier periods than heretofore. The following history affords material for more hopeful prognosis in such cases.

A woman, aged thirty-five, had suffered for some years from femoral hernia of the right side. When she was three months pregnant the rupture became incarcerated, but was reduced without any very great difficulty. During the remainder of gestation it gave her no further trouble, and was not even visible. A month after delivery (the night of July 17-18, 1870) she was seized with violent abdominal pains and eructations. Flatus and fæces no longer passed by the bowels. On the 19th Dr. Betz saw her, and found the right hypogastric region tense, convex, distended, and very tender to touch. The left side of the belly was somewhat sunken in, and not at all tender. Fæcal vomiting had set in. The other symptoms remained as before. Over the swelling the percussion-note was dull; elsewhere normal. The pains extended to the loins, and were remittent. There was no external sign of the old hernia. Digital explorations of the crural canal gave great pain. Three possibilities presented themselves; viz. perityphlitis, internal obstruction (from a twist in the bowel), or strangulation in the crural canal. The globular form and board-like hardness of the swelling were against perityphlitis, whilst all the symptoms favoured ileus. The former history and the local tenderness rendered it probable that there was a Littré's hernia, but this tenderness was afterwards found to be only part of the general sensitiveness to pressure. Morphia was given in half-grain doses every six hours. Cold compresses were applied, and water and ice given freely, but purgatives were religiously avoided. Next day (July 20) she was worse; there was less tenderness, but no improvement in either the local or the general symptoms. Pulse 100. Her countenance was anxious. The ileus had now lasted three whole days. Dr. Betz could see no other means of doing good, except abdominal section, with the view either of breaking down a false ligament (band), or of relieving the possible strangulation in the crural canal by withdrawing the coil of intestine from within. After giving chloroform, he made an incision two inches long through the skin, over the crural canal, in a line be-

tween the anterior superior spinous process of the ilium and the spine of the os pubis. The fat and fasciæ were divided partly by forceps and knife, partly pushed aside by the fingers. The external crural ring was found to be quite clear. The abdominal wall was then divided down to the peritoneum. Before opening this, he tested the resistance and mobility of the coils of intestine, using a little gentle force. The patient and himself were conscious of a very evident crack or snap, as if some fibres had given way. He was now convinced that the volvulus was produced by a false ligament, situated in the pelvis (horizontal ramus of the pubic bone), and, since one end had given way, it was now possible for the bowel to untwist, and for its patency to be restored. The peritoneum was therefore not opened, but the wound was closed with a compress, and the cold applications were continued. Shortly after the operation, both pains and vomiting ceased. On the 21st, the swelling in the right side was still perceptible, but less tense. Her general condition was improving; she had no thirst. Pulse 80. No fæces or flatus passed. Clysters of Glauber's salt, and milk and water diet were ordered. On the 22nd, flatus and a fairly copious, thin, offensive evacuation passed. The tumour was still perceptible, but less tender, flatter, and less elastic. The wound was already more than half healed by the first intention. Her general condition was good. Pulse 80. The clyster was repeated. On the 23rd, the bowels acted pretty freely. On August 15 the wound had healed nicely. Further treatment was simply precautionary, as to diet and regimen. On August 31 she still had slight pain when she lay on her left side. She felt a kind of ball in the original spot; and there was frequent gurgling there, as of gas passing through narrow into wider portions of bowel. Deep pressure in the right hypogastric region gave rise to resistance, and one spot was still tender.

It can scarcely be doubted that, after the breaking down of the false ligament, time was still necessary for the untwisting and gradual restoration to health of the agglutinated and convoluted intestines. Hence the subsequent symptoms. Now that three-and-a-half years have elapsed, she is free from all distress, and has no sign of any hernia. The firm cicatrix, adherent to the abdominal muscles, fulfils the functions of a truss. Dr. Betz modestly attributes this successful result to improved methods of diagnosis and recent additions to our knowledge of the etiology of such cases; and remarks that if 'delays are dangerous' in external herniæ, they are still more so in internal obstructions.

KULISCHER ON A CASE OF ABDOMINAL ANEURISM.—In the *Berliner Klinische Wochenschrift*, nos. 8 and 9 (February 23 and March 2, 1874), there is a very interesting clinical history of a non-commissioned officer, a saddler and harness-maker in the Russian Cavalry (Guards), aged thirty-three, Feodor Chapugin by name, from which we extract the following notes. The author, Dr. Kulischer, is surgeon to the Peterhof military hospital at St. Petersburg. The patient first entered the hospital on January 29, 1872; and Dr. Znamjenski, under whose care he then was, stated that he was 'much emaciated, very pale, and anæmic.' He had symptoms of chronic gastrointestinal catarrh, and complained of pains in the lower part of the abdomen, having suffered for some years from these, and from constipated bowels. His pulse was weak and small, not rapid. The respira-

tory organs were healthy. Under simple treatment, he recovered sufficiently to leave the hospital and resume his duties at the end of February. On January 20, 1873, he was re-admitted; this time under Dr. Kulischer's care. In addition to the abdominal pains, he now complained of feeling a hard body move about in his belly, which, when he stood up, seemed to press upon the left inguinal region; during dorsal decubitus, however, it pressed upon the umbilical region, for the most part on the left side, but very often on the right of the navel, particularly if the patient lay towards the right side. On rising up the patient felt queer, even to faintness, vertigo, and loss of consciousness. He attributed all these symptoms to a left inguinal rupture, and therefore wore a truss on that side. He accounted for the origin of this 'rupture' in this way:—the pains in the lower belly had lasted fifteen years, but had become very much worse in 1872, after he had, during his work, pressed a solid body against the front of his abdomen, and pushed this back against the vertebral column. Violent palpitations of the heart ensued, then the queer feelings, and finally the sensation of a solid body moving about towards the left hypochondrium. Seven days before admission all these symptoms, viz. the faintness, giddiness, and trembling when he stood upon his feet, or remained upright any length of time, had been much aggravated by carrying a weight of little more than 15 lbs. a short distance. This history, and the absence of any reliable symptoms of hernia, gave rise to the opinion that he suffered from an abdominal aneurism, which was justified by the following objective symptoms. 1. To the left, and a little above the navel, the ear alone, or assisted with the stethoscope, plainly heard a whizzing, or for the most part bellows-like, bruit. The eye and touch both verified a strong pulsation, which lifted high the left umbilical region synchronously with the pulse, the movement being chiefly in the vertical direction. This very spot was the site of the most intense pain. 2. When the pulsating spot was compressed with the flat hand, and supported from below and from the front, the patient could assume the vertical position without any of the giddiness, &c.; or, if the pressure were slight, he had slight symptoms. On removing the hand, the radial pulse sank almost to nothing. It became fuller again, and as strong as before, when the patient lay down, or on again making pressure on the pulsating spot, even when he stood upright. Further observations (January 22-31) gave the following results. He suffered from constipation, better relieved by purgatives than by enemata. The result of digital exploration of the rectum was negative. External pressure, even of a bandage, made the bellows-murmur louder and clearer. Compression of the aorta above the navel stopped both the murmur and the pulsation; the latter was usually strongest to the left of the umbilicus. Both femoral pulses, particularly the left, were weaker than the radials, which, in the absence of the faintness, &c., were stronger and fuller than his weak state would have led one to expect. When he was recumbent, the cardiac sounds, breath-sounds, and rhythm of both circulation and respiration, were perfectly normal. The patient had some of his attacks of faintness during the first three days after admission; and again on January 28, whilst standing to urinate. The same evening, at 10 p.m., 'he felt as if something was torn away to the left of the navel.'

The treatment consisted in purgatives and clysters, liquid diet (solid food disagreeing), and local com-

pression of the pulsating spot, by the pad of a truss, retained *in situ* by straps, &c. By February 16 he was so much better as to leave the hospital. On March 4 he was re-admitted, with exacerbation of the symptoms, becoming faint if he only turned his head to the right in bed. Three leeches behind the ear relieved this. In spite of his anæmia, he had almost certainly had cerebral hæmorrhage. A dose, containing ten drops each of tincture of digitalis, cherry laurel water, and Haller's acid elixir, was given frequently when he felt faint. On recovering himself, he asserted that just before March 4 something gave way inside, in a direction from the heart to the lower belly, and that he now had a rupture on the right side, and was therefore obliged to wear a double truss. [It appeared that he had been quacked by a peasant-woman, who had prescribed 'rupture-wort' (*Herniaria glabra*) for him.] On March 6, the roaring in the right side of the head was much better. On the 7th and 8th, the pulsation in the umbilical region was less. On the 9th, the bellows-murmur was less clear and lower-pitched. All this time he complained of tremblings and 'titterings' in the extremities. On March 12, he only complained of a roaring noise in the left half of his head. The former treatment, as to diet, moderate compression over the tumour, &c., was carried out all the time; and on April 3 he considered himself cured, and left the wards to go to his own home.

In commenting on this case, Dr. Kulischer remarks that his colleagues verified the physical signs, and that all the symptoms correspond with those described by Lebert and Virchow. He thinks Wilson's case of aneurism of the superior mesenteric artery, quoted by Lebert (*Krankheiten der Blut- und Lymphgefäße*, pp. 15-33), most parallel, because the celiac axis, splenic, and inferior mesenteric might be fairly excluded; but he will not decide whether the trunk of the aorta, the superior mesenteric artery, or one of its branches, such as the ileo-jejunal, was the seat of aneurism. Some of the symptoms corresponded to aneurism of the aortic trunk. It is, however, possible that the horizontal part of the inferior pancreatico-duodenalis artery was compressed by an aneurism of the superior mesenteric at the part where this vessel passes between the pancreas and the duodenum. This might explain his emaciation and constipation, and his feelings of a solid body moving about. But the latter might also be explained by the dilatation of an artery (perhaps one of the ileo-jejunals) in the mesentery of the patient. The queer feelings (*Wallungserscheinungen*) which sometimes occurred spontaneously, and were sometimes artificially induced, may have been due to hyperæmia of the brain, or perhaps to an opposite condition of anæmia. On March 4, it is probable that there was capillary extravasation within the cranium, chiefly on the left side. It may be, that some aneurismal dilatation of the cerebral vessels may explain the previous symptoms. As regards the prognosis, though Lebert and others recite numerous cases of cure, the emaciation of the patient, and his careless habits, lead one to fear the worst for him. He will very likely resort to a peasant-woman again for advice. Sestier (quoted by Lebert, l.c. p. 33, from the *Bulletins de la Société Anatom.* vol. viii.) gives a case in which an aneurism of a branch of the hepatic artery proved fatal, not by bursting or hæmorrhage, but merely by causing emaciation. Dr. Kulischer hopes to hear of the further progress of this case; one of his objects in recording it being to call

the attention of those medical men into whose hands Chapugin may come to the early history of the case.

[The reporter regrets the omission of two or three points in this excellent clinical history. The first is, that lateral expansion of the tumour, though hinted at, is not clearly expressed; a second, that the details as to the tumour itself are very scanty; and the third, that no sphygmographic tracings appear to have been taken from the femorals or any other artery. Cases of 'pulsatile aorta' with great emaciation, due to obstinate constipation, which resemble the recorded case in many particulars, are not very uncommon in large hospitals.—*Rep.*]

W. BATHURST WOODMAN, M.D.

SURGERY.

GOSSELIN ON RUPTURE OF THE TENDON OF THE TRICEPS CRURALIS.—A patient, aged sixty-two, suffering from slight locomotor ataxy, had above the left patella a great gap. On putting the fingers into this gap, the superior border of the patella could be hooked up and the posterior surface of the bone felt. The patient stated that it was due to a fall four months before, and was followed by considerable swelling. He fell backwards and pulled a piece of furniture on to the part injured. Treatment was inefficacious. M. Gosselin draws attention to two important and instructive points, viz.: 1. The non-consolidation; 2. The treatment to follow in similar cases. 1. Consolidation in these cases is a rare event. M. Demarquay thoroughly treated this question in 1863, and has collected twenty-two cases. This accident is not extremely rare, and the scattered observations have been collected and published in the *Gazette Médicale* by M. Demarquay. Among these he found that there were some who rapidly became cured—after twenty or thirty days—and others were not benefited. In proceeding to inquire into the cause of this non-union, M. Gosselin admits that the explanation is not easy, seeing that tendons unite usually in other situations. Nélaton, in his *Éléments de Pathologie Chirurgicale*, insinuates that the want of success is due to inappropriate treatment, i.e. that the limb has not been rendered sufficiently immovable, and he attaches great importance to the dextrine bandage. M. Gosselin does not agree with this view, but believes that there are other conditions, such as idiosyncrasies, superadded to the treatment, which cause this unsatisfactory state of things. In the present case, M. Gosselin thinks that there was rupture of the synovial membrane of the joint as well—a rare condition, and one which he has seen a very few times.

2. In ordinary cases, the success of the treatment depends much on the position of the limb, its immobility, and the application of a proper bandage. The limb should be placed on an inclined plane, the foot much raised, and, so that the immobility may be quite complete, a posterior splint must be applied, then, over all, an immovable bandage.

H. A. REEVES.

BROCA ON DISLOCATION OF THE TIBIALIS POSTICUS MUSCLE.—M. Broca reported to the Academy of Medicine on January 6, notes of a case of dislocation of the tendon of the tibialis posticus, caused by the too rapid descent of a balloon. The nature of the injury was determined by MM. Courty,

Ollier, and Pozzi. After the tendon had been replaced, a silicated bandage was applied, and twice renewed. Three months afterwards the patient, a medical man, was able to walk a little, but limped. The communication was concluded by a comparison of this case, which was described as unique, with other muscular dislocations, especially those of the peroneal muscles. M. Gosselin pointed out that it was necessary to be careful that the dislocation was thoroughly maintained in place under the silicated bandage, and added that the cure could not be complete till the tendon had contracted adhesion to its sheath.

LE FORT ON A TIBIO-CALCANEAN OSTEO-PLASTIC OPERATION.—In the *Gazette Hebdomadaire* of November 7, 1873, M. J. Le Fort describes an operation which is a modification of Pirogoff's osteo-plastic method, in which he proceeds as follows. He commences the anterior incision 2 centimètres (.8 inch) below the malleolus externus, and directs it forwards to the middle third of the os calcis. On arriving at this point, the knife describes a curve whose anterior convexity corresponds with the astragaloscaphoid articulation; as soon as the internal ligaments of the foot are reached, the knife is directed backwards, and stopped at a point 3 centimètres (1.2 inch) in front of the inner malleolus. Then lifting up the foot, he fashions a plantar flap equally convex with the dorsal, passing transversely under the sole of the foot, and meeting the external incision below the outer malleolus. Next, the dorsal flap is dissected up, in order to find the tibio-dorsal articulation, and great care is taken in isolating the flap so as not to wound the posterior tibial vessels. Dividing the ligaments attaching the foot to the fibula, the point of the knife is thrust between the os calcis and the astragalus, as in the subastragaloid amputation, and the interosseous ligaments are divided. The foot is then separated and dislocated inwards, and the posterior flap fashioned as in Chopart's amputation. In order to disengage the astragalus, it is seized with a strong pair of forceps, and all attachments to the leg are divided. It only remains then to saw the os calcis from behind forward, from which the whole superior articular surface is removed, in such a way as to extend forward close to the articulating surface with the cuboid. Afterwards, all the soft parts being isolated, the articular surface of the tibia and fibula are sawn off, and the cut surfaces of the bones placed in opposition. M. Le Fort maintains that by this method he obtains a firm and perfect basis of support, without the grave inconveniences attending Pirogoff's method.

SCHINZINGER ON THE REMOVAL OF FIXED BANDAGES.—In the *Berliner Klinische Wochenschrift*, no. 9, 1874, Dr. Schinzinger, of Freiburg, describes a method by which the different kinds of fixed bandages may be removed in the quickest and easiest manner; namely, by dividing them by means of a chain-saw, from within outwards. The skin being enveloped in a flannel bandage, or with wadding and a roller bandage, he lays an oiled ribbon or fillet, parallel with the long axis of the limb, upon the roller, and covers this fillet with a strip of blotting-paper an inch broad, allowing an inch or two of the end of it to appear above and below the bandage. After that, the materials of which the fixed bandage are to be constructed, are laid on. A few minutes after the setting of the bandage, the mobility of the guiding-band must be ascertained by pulling at it.

If the bandage have to be taken off some days or weeks afterwards, he fastens to the lower end of the tape, with a strong silk thread, a Jeffray's chain-saw, and draws it, by means of the tape, beneath the bandage from below upwards; in a few seconds, the hard material is cut through by a clean saw cut. Should the bandage be broader than the ordinary length of the saw will pass through (about 16 inches) the oiled band is made to hang out through a gap in the fixed bandage, or holes are bored in it and the fillet seized and drawn through, and thus the structure is cut through in several lengths.

By this means, Dr. Schinzingler has cut through fixed bandages made of plaster of Paris, dextrin, water-glass, and magnesia-water-glass; of these, the last offered the greatest resistance.

PEITAVY ON REDUCTION OF A DISLOCATION INTO THE FORAMEN OVALE OF SIX MONTHS' STANDING.—In the *Wiener Medizinische Wochenschrift* for November 22, 1873, Dr. L. Peitavy, of Freiburg, communicates an account of this case. A man, thirty-four years old, fell down a well thirty feet deep on August 18, 1872, and dislocated the head of the thigh-bone into the foramen ovale. On his admission to the Clinic on February 14, 1873, his condition was as follows. Whilst standing, the left thigh-bone was strongly abducted, bent, and rotated outwards. The pelvis was rotated forwards and towards the left side. There were a left-sided scoliosis of the lumbar vertebrae and a right-sided of the dorsal, and the axis of the thigh was directed inwards. When he lay down, the thigh was flexed and the inguinal fold obliterated, and on placing the leg symmetrically, the distance, measuring from the superior anterior iliac spine to the under border of the patella, was on the right side 44 centimètres (17½ inches), and on the left 41 centimètres (16 inches). On resting on the lumbar vertebrae, the angle of flexion of the thigh was 111° to the bed, the angle of abduction 35°, and the rotation external; the inner malleoli could only be approximated 8½ inches. In this position the distance from the symphysis pubis to the sole, was on the left side 81 centimètres (nearly 32 inches), on the right 75 centimètres (29½ inches). Adduction was arrested, abduction slight, flexion possible.

The dislocation was at last reduced under chloroform (the flexion method having failed a week beforehand), by laying the patient on a table, fixing the pelvis with a cloth, and obtaining counter-extension by means of a perineal band. The extension was made by two students from nooses placed round the thigh above the knee, whilst Professor Czerny took charge of the direction of the thigh, and, at the moment the extension was applied, he rotated the thigh inwards and adducted it. After two attempts in this manner, the head of the bone was replaced in the acetabulum. There was no sign of fracture, and very slight reaction. Ice-bags were applied, and a little later the constant current was used.

The patient was unable to walk on his discharge, four months after, without a stick, owing to palsy of the glutæi and flexors of the thigh, arising from pressure on the nerves.

EDWARD BELLAMY.

GOODWIN ON THE USE OF THE SOLAR RAY AS AN ESCHAROTIC.—Dr. R. S. Goodwin, of Thomastown, Connecticut, writes to the *Philadelphia Medical and Surgical Reporter*, of March 7, that he has for several years used the concentrated rays of the sun in the destruction of nævi, warts, and other trouble-

some superficial growths of the skin, and finds it a very convenient and efficient caustic. He has destroyed chancres with it, and finds it also an admirable method for the local treatment of syphilitic condylomatous growths. In the removal of nævoid growths from the face, he thinks no other caustic leaves so little scar. It never gives rise to hæmorrhage. The pain is not excessive, and is not prolonged after its use. Inflammatory action and suppuration have rarely followed. The eschar drops off in from four to six days after the cauterisation, leaving a surface which heals kindly and rapidly.

By a very little practice in manipulation, the solar caustic can be applied accurately to just so much of the surface as it may be desired to cauterise, and to no more. Its action, moreover, can be limited to the slightest superficial blister, or its effects can be made to penetrate to the depth of a half inch or more at one sitting.

Dr. Goodwin uses a double convex lens, about two and a half inches in diameter, and having a focal distance of nearly ten inches. This lens is mounted on a circular brass rim, having a short flat ebony handle. The patient being placed in the direct sunlight, before an open window, the 'focal point' can be directed at pleasure upon any part. The tissues are destroyed almost instantly to the depth of the skin, with a slight snapping or crackling sound. By a prolonged application, the flesh may be charred to a considerable depth. It is very interesting to see the rapid coagulation of the blood and the shrivelling of the blood-vessels in a nævus under this potent agent.

Dr. Goodwin says that he has found the solar caustic useful in repressing excessive granulations in a badly healing ulcer. He is aware that this method of cautery is not new, but it is not to any extent, at present, in general use. It seems to him, however, that it presents advantages in various superficial operations upon the skin and its morbid growths, and deserves a more general trial.

The editor of the *Reporter* remarks on this subject: 'While agreeing with our correspondent on the value of the solar cautery, we must add that great caution should be exercised in using it in destroying nævi on the face. It is by no means easy to avoid leaving a cicatrix; and the employment of it in several cases, one upon a professional gentleman, has led us to believe that the pain is severe and not of brief duration.'

MATERIA MEDICA AND THERAPEUTICS.

BATTEY ON SACCHARATED CALOMEL.—Dr. Battey (*Atlanta Medical and Surgical Journal*, August, 1873) says that certain peculiar effects follow the administration of calomel prepared in a certain manner, as follows. Six grains of calomel and twelve grains of refined cane-sugar are ground long and diligently in a mortar, until both are thoroughly combined in impalpable powder. During the trituration a delicate canary colour is developed, which is partially lost by keeping. He says that the activity of the calomel is greatly increased by this trituration. Further, chemical analysis proves that the yellow colour is not due to a conversion of the calomel into any mercurial salt soluble in water. He gives the

equivalent of one-half grain of calomel of the saccharated calomel for a dose. From cases reported, it is clear that this dose produces an active bilious purging, surprising to one accustomed to the effects of administration of ordinary calomel. The doctor offers no explanation, but says that any one can verify the fact stated. As a purgative, he gives the same dose both to children and to adults. His cases show that its action is more certain in adults than in children.

REMINGTON ON FLUID EXTRACT OF SUMACH BERRIES.—The berries of the sumach, containing a considerable quantity of malic as well as tannic acid, furnish one of the most agreeable of astringents for mouth-washes, gargles, &c. The following formula, following closely the Pharmacopœia process for astringent fluid extracts, is offered by Joseph P. Remington (*American Journal of Pharmacy*), and is said to yield an elegant preparation, of a rich red colour, representing well the virtues of the berries.

R. Sumach berries, in moderately fine powder ʒxvj
Glycerine flʒiv
Alcohol, water, of each a sufficient quantity.

Mix half a pint of alcohol, three fluid-ounces of glycerine, and five fluid-ounces of water; and, having moistened the powder with four fluid-ounces of the mixture, pack in a suitable percolator, pour on the remainder of the menstruum, close the percolator and allow the powder to macerate for four days; then open the percolator and continue the percolation till twenty-four fluid-ounces have been obtained. Of these reserve the first fourteen fluid-ounces, and evaporate the remainder to two fluid-ounces; mix with the reserved portion, and filter if necessary.

A good gargle and mouth-wash may be made as follows.

R. Fluid extract of sumach ʒiv
Potassium chlorate ʒij
Glycerine, pure ʒij
Water ʒvij
Mix and filter.

JOHANNET ON CONTINUOUS GARGLING IN CROUP.—Dr. Johannet, of Chelles, in a paper lately laid before the Academy of Medicine of Paris, treats of the efficacy of continuous gargling in cases of croup. The important point in presence of this disorder, according to Dr. Johannet, is that whatever may be the nature of the gargle chosen, it must be used without intermission. It would appear that the fauces can no longer secrete the false membrane from the moment that the liquid of the throat is changed, and the temperature lowered; just as moss cannot produce itself on a roof in the presence of unceasing rain. 'So soon,' writes Dr. Johannet, 'as I come to the bedside of a patient in whose case I find false membranes in the throat, if I find him in bed I make him get up directly, and without losing any time I force him to gargle with any liquid at hand; pure water, wine and water, cold milk; it matters not what. The essential point is that the washing out should be reiterated and incessant, and that it should be continued day and night without any intervals of sleep during thirty or forty hours; so long as the false membranes are not modified to such an extent that the danger seems to be averted. Generally I have three different glasses placed before my patient—a glass of pure water, a glass of wine and water, a third of alum water, composed of a teaspoonful of powdered alum in a glass

of water. If fever, somnolence, or cephalalgia, be present, they disappear in a few hours, with the constriction of the throat. The patient thenceforward performing deglutition easily, I induce him as much as possible to eat something, anything he likes, such as fruits in season, apples, pears, cherries, oranges; of course, if I can induce him to take more substantial food, I am delighted to give it to him. Sometimes even, in the hope of producing a useful reaction, I prescribe a solution of perchloride of iron (6 grammes to 200 grammes of water), to be taken by teaspoonfuls every hour, and to be followed immediately by a mouthful of cold milk. But there are cases when cold water, simple cold water, by incessant application, has been successful in an unhoped for degree. For instance, with young children, where gargling is impracticable, I make injections of water into the mouth by means of the ordinary syringe, either by the mouth, taking care to press on the base of the tongue; or by the nasal fossæ when the child offers too great a resistance to the opening of its mouth. At least three persons are then necessary; one holds the child's hands and feet, another fixes the head as in a vice, while the third administers the injection. In the interval of these great washings, which I cause to be performed every quarter of an hour, I take care to have water or cold milk swallowed by small spoonfuls almost incessantly. If it happen that the overfilled stomach rejects the absorbed liquid, I am glad of it; and none the less continue to have fresh ingurgitated either by small spoonfuls, or by large injections with the syringe.'

In the course of three months, M. Johannet has had the opportunity of employing this method thirty times, and, notwithstanding the serious nature of the cases, has only lost two of his patients.

ORÉ ON ANÆSTHESIA PRODUCED IN MAN BY INJECTION OF CHLORAL INTO THE VEINS.—Some time since, M. Oré expressed to the Société de Chirurgie of Paris the opinion (based on experiments with inferior animals) that chloral, injected into the veins, was a surgical anæsthetic superior to chloroform. He has now extended his observation to the human system; having lately treated a man, aged fifty-two years, brought to the Saint André Hospital at Bordeaux, who was suffering from confirmed traumatic tetanus in the masticator muscles, arising from a slight bruise on the left middle finger. He details his treatment and the symptoms observed, and the following consequences are deduced.

1. There was not the least indication of phlebitis. A small abscess only, of special form, was produced at the lower part of the right forearm (where the injection was made), owing to the penetration of chloral into the cellular tissue. 'My experiments with four animals,' M. Oré observes, 'indicate that it is always thus when the dose is large. This leads to a conclusion important for clinicians, viz., that the subcutaneous method is the most defective for administering chloral. If the quantity injected into the cellular tissue be small, it will be absorbed without producing local injuries, but also without having any effect on the system. If, on the contrary, it be large, it causes abscesses. In the former case it is useless; in the latter it is injurious.'

2. A second consequence is the absolute insensibility, rapidly produced and of long duration, when the substance is brought immediately into contact with the blood. At 5 p.m., on 9th February, M. Oré

injected twice, at intervals of three or four minutes, a solution of nine grammes of hydrate of chloral and ten grammes of water. Immediately after the second injection the patient fell into a quiet sleep, the respiration becoming calm and regular, the pulse descending from ninety to seventy, and the muscular rigidity almost wholly disappearing. The anæsthesia was most complete. M. Oré removed a nail from the patient in two pieces, without any murmur from him. At 9 p.m. the anæsthesia still continued, and M. Oré could pass his finger over the ocular conjunctiva without producing reflex action. The patient did not awake till 4 next morning. By 9 a.m., when M. Oré saw him, the sensibility had returned, but was still incomplete in the lower limbs. (Injection was repeated several times with like results, which are fully described.)

3. Hydrate of chloral, administered by the veins, rapidly masters tetanic injuries. Three injections of ten grammes, repeated during three days, at intervals of twenty-four hours, caused (along with sleep) complete paralysis of sensibility and of motility. M. Oré insists particularly on the *small quantity* required to produce a favourable result. By the direct penetration of chloral into the vessels, the physiological action of the substance is as if decupled. What is required to cure tetanus (the author points out), is not to maintain the patient in narcosis during twenty-five hours, but to bring the too exalted reflex power of the spine to its physiological state, and thus to hinder the muscular contraction from becoming general. It is this that chloral does, but only if administered by the venous method.

ALEX. B. MACDOWALL.

PUBLIC HEALTH.

CAMERON AND ANGUS SMITH ON THE INFLUENCE OF CHEMICAL VAPOURS ON AGRICULTURAL PRODUCTS.—At a meeting of the members of the Lancashire Chamber of Agriculture, held at the Town Hall, Newton-le-Willows, an address was delivered by Dr. Charles A. Cameron, analyst to the City of Dublin and the Royal Agricultural Society of Ireland, on 'The Influence of Exhalations from Manufactories on Agricultural Products.' The chair was taken by Sir Robert T. Gerard, Bart.

Dr. Cameron said he must in the first place express his thanks for the compliment which the Lancashire Chamber of Agriculture had paid him, in inviting him from the other side of the Channel to give a lecture on the nature of the gases which were evolved in such large quantities from some of the manufactories of this country, and to state what he had seen with regard to the evil effects of those gases upon the agricultural products of the different districts in which certain works were situated. He came there as an unprejudiced person, having no leaning on the one side towards the manufacturers who produced the gases, nor on the other hand towards the agricultural persons who were affected by those gases. It would be necessary to describe the different gases, vapours, and solid particles evolved from the multitudinous works and manufactories which were scattered broadcast over Lancashire. In making salt-cake, a large quantity of gas called muriatic acid was produced. Most of this gas was formerly allowed to escape into the atmosphere, as it was incidentally produced in larger quantities than it

could be utilised; but in 1862 an Act of Parliament was passed, which prohibited manufacturers from permitting more than five per cent. of the gas produced in their works to escape into the air. Dr. Angus Smith was appointed chief inspector, to see that the provisions of the act were carried out. From his reports, it appeared that in many works the escape of the acid gas was almost completely prevented, whilst in others the amount escaping occasionally was considerably over five per cent. The Alkali Nuisance Prevention Act had proved of great value, but it did not wholly abate the evil; as, owing to the recent great increase in the number of alkali works, and to the occasional extensive leakages of gas from a large proportion of them, the quantity of muriatic acid evolved into the atmosphere was injuriously large, and caused considerable damage to agricultural products. The alkali-works were not, however, to blame for all the mischief done to the flora of Lancashire. From the oil of vitriol works, which included the artificial manure manufactories, sulphurous and nitric acids were evolved; from the copper smelting works, sulphuric acid; and sulphurous acid was evolved from the salt cake, or sulphate of soda, largely used by the glass bottle makers. From the gas works, soap and caustic soda works, the poisonous sulphuretted hydrogen gas was evolved in dangerous proportions. The alkali makers generally prepared bleaching powder, in producing which chlorine—a far more poisonous gas than muriatic acid—was evolved into the air. The lecturer prepared the gases to which he referred, and exhibited the effects. He next referred particularly to the special injury which these gases inflicted on the trees, hedges, and crops of Lancashire; and described what he himself observed in a tour through the manufacturing districts. In many parts he found the trees and hedges utterly destroyed. On the farm of Mr. Davenport, of Dutton, he saw a crop of wheat, the produce of six acres, so much injured by the exhalations of a cluster of chemical works that it was not worth thrashing. On the farm where the crop was produced every vegetable bore the marks of the acid, and on some of them it could be distinctly tasted. A plantation of willows close to the works was utterly burnt up. All this damage was done within two years, the period of the existence of the works. Some gases travelled two or three miles without being condensed, or were sufficiently mixed with the air to be unrecognisable. The exhalations from a cluster of works could do heavy damage at a mile distance. Black smoke was also injurious to agricultural products. The acid gases did most mischief in wet weather. The hazel, oak, beech, and birch were most affected by the gases; next, the sycamore and maple, spruce, willow, hawthorn, ash, and lime; and amongst the least susceptible were the poplar, aspen, and elder. Fruit trees resisted better than most forest trees.

Dr. Cameron said that the most fashionable part of Dublin was subjected to the same nuisance, and property had been very much depreciated in value in consequence. Everything that was possible had been done to abate the nuisance. In the case of works which emitted sulphuretted hydrogen gas, they had succeeded to a great extent, but there was no constant supervision. What he suggested was, that the works should be put under a scientific inspector, the same as alkali works.

Dr. Angus Smith said that there were a few points upon which he might express an opinion in somewhat different language to Dr. Cameron, but upon

the whole he had given a very full and true account of the state of matters which existed in Lancashire. It could not be doubted for a moment that the gases from the manufactories at St. Helen's and Widnes did a great deal of harm to vegetation. It was apparent to every one, even when passing rapidly through the county in a train. The best mode of dealing with the question required a good deal of consideration. The gases might be divided into two kinds—the avoidable and unavoidable; that was to say, those which could be dealt with and those which could not be dealt with. For example, the sulphurous acid from the collieries, and from coal smoke generally, was a substance they could scarcely attempt to treat otherwise than now. He thought it must be allowed full freedom, at least for a long time to come; and he did not see any method of diminishing the nuisance, except by diminishing the combustion of coal, and that of itself was a very large question. That gas, no doubt, did some injury to the county, especially in the south portion, and the trees bore abundant evidence of the deleterious action of coal smoke. But, then, there were other gases, which came from the so-called chemical works, such as Dr. Cameron had been speaking of—muriatic acid, sulphuric acid, and sulphurous acid. These did direct and certain injury within a radius of one, two, three, or four miles, according to the quantity evolved in the district. He might repeat what Dr. Cameron had said—namely, that the means of condensation of these gases were not keeping pace with the enlargement and increase of these manufactories. A large work might only give out five per cent. of muriatic acid gas; and although that quantity might seem small, it might prove in reality very large. A small work giving out twenty per cent. might, in reality, do much less damage than a large work which evolved only five per cent. The question was, therefore, a very complicated one. He could not pretend to deal with the subject in a short speech; but he would repeat the opinion he had given in his published reports, that the time had come when a little more pressure should be put upon the manufacturers of chemical substances in all those cases where noxious gases were evolved in the process. As to the division of the county into manufacturing and non-manufacturing districts, that was an idea he entertained at one time, and it was carried out in Belgium; but there were many difficulties in the way of putting it into operation in this country. As to the second part of Dr. Cameron's proposal—the distribution of damages according to the amount of gases evolved by each manufacturer, he did not think there were any insuperable difficulties in the way of carrying out that part of the scheme, and it might be useful in considering the subject anew. However, without being definite upon any of these points, he was quite definite upon this point—that more legislation and a little more pressure ought to be put upon chemical manufacturers, at the same time always remembering that pressure must be such as not to destroy a very important industry, and that both agriculturists and manufacturers should have full and fair consideration in the adjustment of their rights.

Mr. H. Neild said the subject was a very large one, as affecting both the commercial and the manufacturing interests of the country, and they had better not commit themselves to propounding any specific remedy. The amount of damage which was being done to agricultural property in this part of the

county by the chemical vapours was patent to every person who travelled on the railway.

WHITMORE ON ANALYSIS OF ARTICLES OF FOOD AND DRINK.—Dr. Whitmore has presented to the Vestry of St. Marylebone his fourth Quarterly Report of his analyses of various articles of food and drink purchased by the inspectors and other persons in the parish.

The samples analysed were 62 in number, and consisted of milk, tea, coffee, cocoa, chicory, sugar, black and white pepper, mustard, arrowroot, flour, butter, lard, vinegar, and ale.

The milk—of which there were 21 samples—varied greatly in specific gravity, richness in cream, and in the amount of other constituents; but inasmuch as, with three exceptions only, all the samples contained as large a quantity of these constituents as is sometimes found in poor milk, known to be genuine, he could not certify that either of them had been adulterated. With regard to the excepted samples he found, after taking as a standard of comparison the very poorest genuine milk, that they were diluted with from 10 to 12 per cent. of water, and that from one of them a considerable quantity of cream had also been abstracted. In all these cases the vendors were prosecuted, convicted, and fined.

All the samples of tea were genuine, but the leaves were much broken, and in some of the samples a considerable quantity of tea-stalks and dust were found.

Five samples of coffee were examined; of these three were free from adulteration, and two contained a large quantity of chicory. One of these latter was wrapped in a paper, on which it was stated to be a mixture of coffee and chicory. With the other sample there was no such announcement; it was sold as coffee; and a summons will probably be taken out against the vendor of it.

The samples of cocoa were sold as 'prepared cocoa,' and consisted of a mixture of cocoa, sugar, arrowroot, or sago-starch.

All the samples of sugar, pepper, and chicory, appeared to be genuine.

Four samples of mustard were analysed; two were genuine, and two adulterated with wheaten flour and turmeric. In one of these latter cases the vendor should be prosecuted, as it was sold as genuine mustard.

The samples of arrowroot appeared to be genuine St. Vincent arrowroot; no potato or other starch granules could be detected in either of them.

Six samples of vinegar were analysed; they were all specimens of malt vinegar, and were free from any other adulteration than that of sulphuric acid. This acid is, however, he believes, permitted by law to be added to vinegar to the extent of about one part of the acid to one thousand parts of vinegar. In these samples the quantities varied from 0.213 to 1.421 parts of sulphuric acid in 1,000 parts of vinegar.

The samples of butter were carefully analysed, and the only adulterative ingredients found in them were water and salt. In one sample the water amounted to 13 per cent., and the salt to 6 per cent.; in a second the water and salt were respectively 13 and 5 per cent.; and in a third 16½ and 3 per cent. None of these quantities can be considered excessive, and, in his opinion, do not constitute adulterations.

The samples of lard were all genuine; the quantity of water found in them varied from 3 to 8 per cent. only.

In the one sample of ale analysed, no injurious or unwholesome adulteration was detected; it had simply turned sour.

Three samples of flour were brought to the inspector by an inhabitant of the parish to be analysed. One was genuine, the second contained a large quantity of alum, and the third an excessive quantity of the same salt. Dr. Whitmore has reason to believe that the two samples had been purposely adulterated in order to test his ability to detect the presence of alum in flour; and, as he has since heard nothing of the person who brought the samples, he supposes that the certificate which he gave of the results of his analyses was correct.

A COLLIERY DISTRICT.—Mr. Edward Robson, the inspector of nuisances for the Bedlingtonshire Local Board District, has brought under the notice of the local board the discreditable sanitary condition of several of the colliery districts. He says that in the North Blyth and Link End district, which is almost entirely the property of Sir M. W. Ridley, Bart., there are 41 houses, cottages, and tenements, two being public-houses, with a population of nearly 200, and the whole are without privy, ash-pit, or sewage accommodation, and are, in consequence, in a most deplorable state. At North Blyth the ash-heaps form high mounds, being an accumulation of years past, the non-removal of which, it is supposed, sent the cholera through the district twenty-two years ago. At Scotland Gate, the filthy and unsanitary state of the place called Colliery Side is almost indescribable. The great cause of this is over-crowding; into every kitchen, room, garret, and stable are large families crammed, without any additional conveniences having been added to the property. It is therefore not to be wondered at that death and disease are never from the doors. At the Bedlington Colliery 76 houses, with nearly 500 inhabitants, are still without privies and sewerage. The water is principally supplied from carts, at $\frac{1}{2}$ d. per pail. At Bedlington Station there are 120 houses or tenements, with an overflowing population of 752. There are only 60 privies and 30 ash-pits, little or no sewerage, no water supply, every house crammed from kitchen to garret—in many are six adults and from five to seven children, with only a small room and loft to stow this human cargo. The highway leading to Cambois bears abundant evidence of the degraded state of this place, through the want of more necessary accommodation and a proper sewerage arrangement. At the Iron Works there is not a single ash-pit or privy for the overcrowded tenemented property. Every conceivable filth is deposited in all the holes and corners. After a shower, or in the heat of the sun, the stink is abominable. At the Nedderton Colliery there are 146 single and double houses, destitute of all sanitary arrangements, and containing a population of nearly 900, old and young. In many instances, with no fewer than thirteen or fourteen in family, a small house of kitchen and loft is the only accommodation. The rows that are lately built, and those that are in process of building, combine everything requisite for health and comfort.—After referring to other localities in the district, Mr. Robson says: There is scarcely a part of the district which is not overflowing with sanitary defects. The majority of small houses and cottages, which exist in this as in many other parts of Northumberland, are deficient in almost every requisite that should constitute a home for a Christian family

in a civilised community. Unfortunately, whilst all are ready to admit the desirability of immediate sanitary improvements in this populous district, many are very averse to pay for them. The most important and principal requirements are—first, the immediate removal of organic matter from all places where, by putrefaction, it can contaminate the air, food, and water; secondly, sufficient of breathing space allowed for each inhabitant; and thirdly, a plentiful supply of pure water. One special exception is made by Mr. Robson in the case of the Cambois Colliery. There, he says, everything has been done for the comfort and sanitary condition of the miners that a rich company and a liberal-minded man could devise. The houses are large and airy, privies clean, and ash-pits spacious. The drainage is excellent, every house having a patent sink and trap. Water is supplied to large tanks from a well—it is plentiful, and of good quality if properly filtered.

EXPENSES OF PORT SANITARY AUTHORITIES.—At the recent meeting of the Associated Chambers of Commerce, one of the subjects discussed was the charges cast upon the Port Sanitary Authorities in carrying into effect the regulations issued by the Local Government Board with reference to cholera; and a resolution was passed by thirty-six votes against nine to the effect that the charges incurred by the Port Sanitary Authorities for the prevention of the introduction of cholera and other infectious diseases from infected ports into this country should be payable out of the Consolidated Fund. In the course of the discussion, it was urged, that the expenses which are incurred at the different ports for preventing the importation of disease are not merely for the benefit of the towns on the sea border, but for the country generally; and that it is hardly equitable, therefore, that the expenses should fall exclusively on the areas abutting on the ports. The Government already, under the Quarantine Acts, bear the costs incurred in protecting the country against yellow fever.

AMENDMENT OF THE SANITARY ACTS.—The Health Committee of the Sunderland Town Council have passed the following resolutions as to amendments of the Sanitary Acts. 1. **Water-Supply.**—Provision should be made, as proposed in the bill submitted by Sir C. Adderley last year, that any inhabited house without an adequate supply of wholesome water for domestic purposes should be deemed a nuisance within the Nuisance Removals Acts. 2. **Buildings, foundations, damp, &c.**—Power is urgently wanted to secure that inhabited houses shall be built on proper, dry, and wholesome foundations. Frequently, in Sunderland and other large towns, vales, quarry, and other holes are filled up with rubbish and filth, often of the most objectionable kind, and after a short time built upon, and no power is vested in the sanitary authority to prevent it. Power should also be given to require spouting for inhabited houses, not simply as now, where the drip would be upon the public footpath, but in all cases where necessary to secure freedom from damp. 3. **Drains.**—The sanitary authorities should be enabled to lay the house-drains in cases of new houses, and charge cost to the owners. 4. **The registrars of births and deaths** should be bound to furnish immediate notice to the medical officer of health of any death occurring in the district from any infectious disease, and weekly returns of all deaths, to be paid at the same rate

as for returns under the Vaccination Acts; and all medical practitioners, in any hospital or establishment which receives money from the rates or taxes, should be compelled to furnish returns of sickness from infectious diseases, specifying the neighbourhood where such cases have arisen.

PORT SANITARY AUTHORITY OF LONDON.—The medical officer of health for the port of London, Mr. Leach, has, the *Times* says, recently issued a sanitary report, which contains not only a statement of the work done within his district, but also some account of its peculiar features, and of the general principles on which the sanitary inspection and supervision of ports should be conducted. The sanitary jurisdiction of the port of London extends from Teddington Lock to the North Foreland, and is 88 miles in length. It includes eight sets of docks and 13 creeks, and is in contact, at high water mark, with the districts of 46 different sanitary authorities, all of whom had riparian powers before the Public Health Act of 1872 came into operation. More than two-thirds of the work of the sanitary officers of the port is, however, confined within the ten miles lying between London Bridge and Woolwich Arsenal Pier. The ten miles first referred to contain an average of 400 moored vessels, of which more than 90 per cent. have crews on board. A large proportion of these vessels require constant general inspection; and many of the old class of coasters, which do not come under the cognisance of the officers of Customs, are said to be in especial need of supervision. In little more than three months the sanitary inspector visited and inspected 505 vessels of all kinds in the river, attention being particularly directed to those which came from ports infected with, or suspected of cholera. Mr. Leach considers that, with the aid of a steam launch, an active officer may inspect 60 vessels a day in the river, and 60 or 70 in the docks. The latter contain an average of from 600 to 700 vessels, 50 per cent. of which have crews on board; and out of 1,494 of these vessels that were inspected, the sanitary arrangements of 338 were found to be more or less defective. The creeks, also, seem to require especial vigilance; they being mostly occupied by barges containing offensive cargoes of various kinds, such as manure, street sweepings, gas liquor, bones, and other noxious substances. The materials of these cargoes are stored in depôts on shore, the condition of which is, in many cases, such as to call for the active co-operation of the shore authority. The most important part of Mr. Leach's duties during the half-year arose out of the action rendered necessary by an importation of cholera. On July 27 the steamer *Iris* arrived in the port from Hamburg, bringing 82 Danish and Swedish emigrants from Kiel, Hamburg, and Copenhagen. These people were landed at Blackwall, and were sent to various lodging-houses in Whitechapel until they could re-embark to proceed to New Zealand. A few hours after the landing, two of their number were attacked by cholera, and one of them speedily died. Mr. Leach arranged with the harbour master of the port for the isolation and fumigation of the *Iris*, and the medical department of the Local Government Board took measures to prevent the immediate departure of the emigrants; and strongly recommended that they should be removed from the metropolis and isolated for the purposes of observation. After careful consideration, the emigrants were collected and conveyed to the

hospital ship *Rhin*; and eventually, after some of them had recovered from attacks of choleraic diarrhoea, they were all dispatched in good health to their destination. There can be little doubt that these timely precautions preserved the east end of London from an outbreak of disease that might easily have assumed very formidable proportions. In two other cases in which cholera was brought into the port the necessary protective measures were immediately adopted. Mr. Leach describes at length the hospital ship *Rhin*, which he considers unsuitable in many respects for the purposes for which she is required. He suggests that a gun-boat or a small vessel of 80 or 100 tons, to contain 16 or 20 patients, would meet all the necessities of the case. He points out his own need of a steam launch, without which it is impossible for him to carry on the duties committed to him; and he concludes a very clear and interesting report by a statement of the qualifications and duties of a port medical officer and of his sanitary inspectors.

OPHTHALMOLOGY AND OTOLOGY.

WECKER ON CYSTOID DEGENERATION OF THE IRIS.—M. Wecker (*Annales d'Oculistique*, July and August, 1873) believes that quite apart from the cases of extreme anterior or posterior synechia which cause cystoid degeneration of the iris, any folding of the iris, such as occurs in partial or complete luxation of the lens, may do so. He records in this paper several instances of its occurrence.

Case I. A man, aged thirty, four weeks previously had received a severe blow upon the right eye from the branch of a tree; there was no wound of the eye but absolute blindness and excessive tenderness to the touch. The crystalline lens was dislocated into the vitreous humour, but its exact position could not be determined. The iris was tremulous, of a greenish hue, and appeared to be drawn backwards. In six weeks all symptoms of irritation had disappeared, and the man left the hospital. In six months time he again presented himself. The front of the globe appeared curiously pointed, the cornea retained its transparency, and behind it there appeared five greyish transparent vesicles, separated from each other by deep furrows, three of them as large as peas, the others no larger than millet-seeds. In the centre, in the situation of the pupil, was a greyish opaque mass of tissue—by oblique light it could be seen that the contents of the vesicles were transparent. M. Wecker considers that the retraction of the vitreous humour, altered in its structure, had encouraged a folding backwards of the iris, and the subsequent agglutination of its surfaces to each other, and asks in what does such a case differ from those known as cysts of the iris.

Case II. At the time of siege of Paris, a woman, aged twenty, presented herself, who on the preceding day had received a blow from a spent bullet on the left lower eyelid. There was no wound of the eyelid or eyeball, but the latter had lost all perception of light, was very painful and much injected; blood in the anterior chamber prevented any examination of its interior. The removal of this by absorption at the end of three weeks made it evident that, as in the previous case, the crystalline had been displaced into the vitreous humour, and the iris was tremulous and drawn backwards. Some months later the eye had

become somewhat atrophied and was no longer irritable; the front of the eye was somewhat pointed, the cornea was transparent, and the iris presented the appearance of being converted into four vesicles as large as a pea, similar in every way to those previously described.

Case III. A man had received a blow on the left eye with a fist. For some weeks the eye remained blind and painful. At the end of two months the pupillary space had become clear, and showed a dislocation of the lens into the vitreous humour; the iris was tremulous and much torn.

Eight months afterwards the eye had undergone the same partial atrophy and change in shape before mentioned. There were five grey and transparent vesicles developed in the iris, three of them as large as peas and filling the anterior chamber. The eye being perfectly quiet, no treatment was adopted.

From these observations it is clear that as a result of a folding of the borders of the iris and the subsequent agglutination of these folds, diverticula are formed, which, by becoming distended, may give rise to the condition of cystic degeneration.

In conclusion, M. Wecker believes that iris-cysts may develop:

1. As a consequence of the iris becoming entangled in a wound of the cornea, the aqueous humour being retained.

2. As a result of the formation of posterior synchia.

3. In consequence of being drawn backwards and thrown into folds, the entire iris may undergo this kind of degeneration. BOWATER J. VERNON.

MISCELLANY.

CHOLERA.—A recent report from Breslau states that cholera is spreading in some parts of Upper Silesia; viz., in Lipine, Piosniki, and Schwientochlowitz. In the latter place, a number of cases occurred two or three weeks ago, of which two-thirds were fatal. The schools were closed, to prevent the further spread of the contagion.

BIRTHS AND DEATHS IN BERLIN.—In the year 1873, 36,281 children (18,660 males, and 17,621 females), were born in Berlin. Of these, 5,352 were illegitimate. There were 420 cases of twins, and 6 of triplets. The number of deaths was 28,078, including 1,562 still-births; including the latter, the deaths in the first year of life were 12,699. Compared with 1872, the year 1873 had 578 more births, and 113 fewer deaths.

PROFESSOR HYRTL.—On the 16th instant, Professor Hyrtl retired from the chair of Anatomy in the University of Vienna. At the close of his lecture, he was met by a large body of students, of whom he took a friendly farewell. An address was presented to him by the *Doctores-Collegium*, and it is intended to place a marble bust of him in the building. In the evening, there was a festival of the students, during which a portrait of Hyrtl was unveiled.

THE DWELLINGS OF THE POOR.—Dr. Whitmore, the medical officer of health for St. Marylebone, in his monthly report as to the sanitary condition of that district, remarks: 'The great and growing necessity for improvement among the dwellings of the poor and industrial classes, not only in this parish, but throughout the metropolis generally, becomes every now and then strikingly manifest. My attention has lately been called to the condition of certain tenements in Marylebone Lane. One of these

contains nineteen rooms, which would appear to have been originally constructed with most especial disregard to order in arrangement, uniformity, or convenience. Every part of this most miserable abode is in a ruinous and dilapidated condition; the flooring of the rooms and staircases is worn into holes and broken away, the plaster is crumbling from the walls, the roofs let in the wind and the rain, and the drains are very defective, and the general aspect of the place is one of extreme wretchedness. The number of persons living in this house is forty-seven. My first impulse was to declare the house unfit for human habitation, and, by means of a magistrate's order, to remove the inmates at once. A moment's reflection, however, convinced me that by adopting that course I should really accomplish no good object, inasmuch as the poor people, thus suddenly ejected, would be compelled to seek shelter in dwellings probably more crowded, and in an equally bad sanitary condition. The utmost amount of sanitary work the vestry has power to enforce has, of course, been ordered, and when completed may be productive of some little benefit to the comfort and convenience of the poor tenants and their families; but no amount of work short of entire reconstruction can render it, in the proper acceptance of the word, a healthy dwelling.'

THE ATMOSPHERE OF PARLIAMENT.—We are glad to be able to state that, during the present session of Parliament, special means are likely to be taken which will make the atmosphere of the Houses physically as well as politically clear. The ventilating arrangements of the Houses—although not equal to the difficult task of satisfying the idiosyncratic tastes of a great collection of gentlemen of all ages, constitutions, and habits of life—are singularly perfect. More air can be passed through the House without draughts, than through any similar building in Europe; the whole atmosphere of the House can be renewed in little more than ten minutes, and more air passes through the House when the windows are shut than when they are open: although such is the force of habit, that members sometimes insist in hot weather on having the windows opened, and profess themselves sensibly cooler, notwithstanding that the thermometers throughout the House immediately rise one or two degrees. Such is the force of imagination, even over the minds of statesmen, and such the power of mind over matter. During the vacation, Dr. Percy, F.R.S., to whom the control of the warming and ventilation of the Houses of Parliament has for some years been entrusted, has been trying some experiments with 'cotton-wool filters' through which all the air entering the house has been driven; the result has been such as would be startling to any one who has not been accustomed to consider the floating dirt with which the London atmosphere is loaded. The late Mr. Appold, F.R.S., the ingenious contriver of the Appold centrifugal pump, and of a great many other ingenious and important contrivances, possessed a house which was a very wonderland of curiously useful and convenient devices. The doors opened automatically, the temperature was self-regulating, and could be set for the day, or altered at any time, by setting a thermal dial. But the crowning feature of interest was a visit to the lower regions of the house, where the air was passed in for ventilation of the rooms. It was driven by fans through a succession of very fine wire sieves, and at the foot of these sieves was deposited a heap of black dust, the winnowed impurities of the air, which taught the observer a fearful lesson as to the many pecks of dust which all Londoners must annually, if not monthly, pass into their organism, and explained why it is so difficult to keep a London house clean. An inspection of the fleeces of Dr. Percy's air-filters will teach a similar lesson. Once snowy white, they are now of a heavy murky brown, thick with dust, and infiltrated with organic impurities. The experiment was tried during a heavy London fog; and there can be no doubt of the advisability of employing for the ventilation of the house an expedient which will at once purify and clear its atmosphere.

MAINTENANCE OF PAUPER LUNATICS.—Dr. Williams, Medical Superintendent of Hayward's Heath Lunatic Asylum, has published a tabulated return of the maintenance rate for pauper lunatics in all the county asylums in England and Wales for 1872 and 1873. The return shows that the average weekly maintenance rate in 1873 in the forty-five asylums was 10s. 3^d. The average weekly maintenance rate for the Sussex Asylum at Hayward's Heath was 9s. 6^d., being 8^d. less. There were only six asylums, including the Sussex Asylum, in which the rate was lower in 1873 than in 1872—in the majority the increase was very considerable.

ELECTRO-CHEMICAL BATHS.—The therapeutic uses of the electric bath have as yet been very imperfectly investigated. That it is a potent therapeutical agent can hardly be doubted; but it is not always at hand, and has been little tried. At Guy's Hospital an electrical bath has, we believe, been fitted; but, for practitioners desirous of investigating this mode of applying generalised electricity to the surface of the body, no conveniences exist. The baths hitherto known as Dr. Caplin's have been open to the objection of being under the control of an individual; they are now taken over by a company, and we are assured that every facility will be given to practitioners for conducting the treatment of their patients under their own immediate control and supervision. We hope that the results may prove to be interesting to science, and useful in practice.

NOTICE.

THE LONDON MEDICAL RECORD is published every Wednesday morning, and may be ordered direct from the Publishers, Annual Subscription, 17s. 4d.; free by post, 19s. 6d.

Reading Covers to hold 12 numbers of THE LONDON MEDICAL RECORD have been prepared, and may be had direct from the Publishers or through any Bookseller, price 2s. 6d. each.

Foreign Books for review in this Journal may be sent addressed to the EDITOR, care of Messrs. DULAU & Co., London; and through their Agents:—Paris: Mr. G. BOS-SANGE, Rue Quatre-Septembre—Leipzig: Mr. K. F. KOEHLER—Florence: Mr. E. LOESCHER—Brussels: Mr. C. MUQUARDT.

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RECORD OF VACANCIES

HOSPITALS, ETC.

| INSTITUTION. | OFFICE. | SALARY PER ANNUM, TERMS, ETC. |
|--|---|--|
| North London Consumption Hospital | Physician | £ s. d. |
| Middlesex Hospital | { Assistant Physician | — |
| | { Assistant Obstetric Physician | — |
| | { Dental Surgeon | — |
| Nottingham County and Borough Lunatic Asylum | Assistant Medical Officer | 100 0 0 board, lodging, &c. |
| Kilburn Dispensary | { Senior Resident Medical Off. | 120 0 0 apartments, &c. |
| | { Junior | 80 0 0 |
| Wilts County Lunatic Asylum | Assistant Medical Officer | 100 0 0 board, residence, &c. |
| St. George's Hospital for Skin Diseases, Liverpool | Assistant Surgeon | Honorary. |
| General Hospital, Birmingham | Physician | — |
| London Hospital | Physician | — |
| Chorlton upon Medlock Dispensary | Resident Medical Officer | — |
| Bristol Lunatic Asylum, Stapleton | Assistant Res. Med. Superin- tendent | 80 0 0 rising to £100, furnished apartments, board, &c. |
| Co. Down Infirmary, Downpatrick | Assistant Surgeon and Registrar | — |
| Hull General Infirmary | Physician | — |
| | { Assistant Physician | — |
| King's College Hospital | { Pathological Registrar and Curator | — |
| Hospital for Consumption, &c., Brompton | Resident Clinical Assistant | — |
| Westminster Hospital | Surgical Registrar | 40 0 0 |
| Eastern Dispensary, Bath | Medical Officer | Honorary. |
| Royal Infirmary, Edinburgh | Resident Physician | — |
| Deal and Walmer Dispensary | Surgeon | Honorary. |
| East Suffolk Hospital, Ipswich | House Surgeon | 100 0 0 furnished apartments, board, &c. |

MISCELLANEOUS.

| INSTITUTION OR PLACE. | OFFICE. | SALARY PER ANNUM, ETC. |
|---|---|------------------------|
| | | £ s. d. |
| | Two in Medicine | 150 0 0 (each) |
| | Two in Surgery | 150 0 0 " |
| | Two in Anatomy | 100 0 0 " |
| | Two in Physiology, Com- parative Anatomy, and Zoology | 150 0 0 " |
| University of London | Examiners | 75 0 0 " |
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| Warwick and Leamington Female Peniten- tiary | Medical Officer | — |
| Queen's College, Birmingham | Joint Professor of Medical Jurisprudence | — |
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| School for the Indigent Blind | Consulting Physician | — |

POOR LAW AND SANITARY SERVICE.

| UNION, DISTRICT, ETC. | OFFICE. | SALARY PER ANNUM, TERMS, ETC. | AREA. | POPULATION. |
|---|--|--|--------|-------------|
| Kilmaethomas Union, Kilmaethomas Dispensary District | Med. Off., P.V. & Reg. of Births, &c. | £ s. d. 120 0 0 and fees | 40,839 | 9,326 |
| Andover Rural Sanitary District. | Med. Off. of Health | 10 0 0 for one year and 21s. for each visit required. | — | — |
| Martley Rural Sanitary District | Med. Off. of Health | 100 0 0 | 53,602 | 16,292 |
| Machar, Old { part of Southern Division and the Poor House } | Parochial Med. Off. | — | — | — |
| Pocklington Union, Sutton-upon-Derwent Dist. | Medical Officer | 24 0 0 | 14,778 | 2,205 |
| Guilford Union, Albury District | Medical Officer | 60 0 0 | 8,190 | 2,544 |
| Fulham Union { No. 3 District No. 4 District } | Public Vaccinator Medical Officer | Fees 50 0 0 and fees | — | — |
| Tewkesbury Urban Sanitary District | Med. Off. of Health | 50 0 0 and private practice. | — | 5,409 |
| Upton-on-Severn Union, No. 3 District | Medical Officer | 85 0 0 and fees | 14,864 | 3,130 |
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| Newcastle-under-Lyme Union, Whitmore Dist. | Med. Off. & Pub. Vac. | 15 0 0 and fees | 7,572 | 1,194 |
| Bradford, Lancashire, Urban Sanitary District | Med. Off. of Health | 20 0 0 | 288 | 7,163 |
| Prestwich Union, Bradford District | Medical Officer | 20 0 0 | 383 | 9,673 |
| St. Saviour Union, Newington St. Mary District | Medical Officer | 130 0 0 | 624 | 82,220 |
| City of London Union, Casual Wards | Medical Officer | — | — | — |

RECORD OF APPOINTMENTS.

HOSPITALS, ETC.

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|------------------------------|----------------|---------------------------------------|--|
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POOR LAW AND SANITARY SERVICE.

| NAME. | TITLE. | OFFICE. | DISTRICT. | SALARY PER ANNUM. | AREA. | POPULATION. |
|----------------------------------|------------------|---|--|-------------------|--------|-------------|
| Evans, Evan | M.R.C.S. Eng. | Med. Off. and P.V. | No. 8 District, Bridgwater Union | £ s. d. 56 0 0 | 13,168 | 3,344 |
| Garlike, Edward W. B. | L.R.C.P. Ed. | Med. Off. and P.V. | Cheshunt District, Edmonton Union | 70 0 0 and fees. | 8,430 | 7,538 |
| Heaven, Charles T. | M.R.C.S. Eng. | Med. Off. and P.V. | Colsterworth District, Grantham Union | 37 10 0 | 16,988 | 3,026 |
| Moore, Walter | M.R.C.S. Eng. | Med. Off. and P.V. | Hartlebury District, Droitwich Union | 50 0 0 | 6,665 | 2,291 |
| Read, Charles | M.R.C.S. Eng. | Medical Officer | No. 2 District, City of London Union | 140 0 0 | — | — |
| Saunderson, Robert, jun. | M.D. | Medical Off., P.V., & Reg. of Births, &c. | Rhode Dispensary District, Edenderry Union | 120 0 0 and fees. | 29,691 | 4,569 |
| Sequeira, Henry L. | M.R.C.S. Eng. | Medical Officer | No. 5 District, City of London Union | 140 0 0 | — | — |
| Tivy, William J. | L.R.C.P. Ed. | Medical Officer | Dilwyn District, Webley Union | 78 0 0 | 20,103 | 3,646 |
| Townsend, Richard | L.K.Q.C.P. Irel. | Med. Off., and P.V. | Queenstown Dispensary District, Cork Union | 130 0 0 and fees. | 7,013 | 17,322 |
| Wallace, S. L. | Dr. | Parochial Med. Off. | Inverkip, Renfrewshire | 15 0 0* | — | 4,502 |
| Weston, William B. | M.R.C.S. Eng. | Med. Off. and P.V. | Rocester District, Utttoxeter Union | 32 0 0 and fees. | 12,232 | 2,644 |

* And an allowance of 100*l.* for the first year.

MISCELLANEOUS.

| NAME. | TITLE. | OFFICE. | INSTITUTION OR PLACE. |
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| Bushell, Stephen W. | M.D. | Teacher of Botany and Zoology | Royal Medical Benevolent College, Epsom. |
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| Johnson, Henry | M.D. | Public Analyst | Montgomeryshire. |
| Leebody, John R. | M.A. | Public Analyst | County Londonderry. |
| Moinet, Francis W. | M.D. | Lecturer on Materia Medica | Surgeons Hall, Edinburgh. |
| Smart, Andrew | M.D. | Examiner in Chemistry | Royal College of Physicians, Edinburgh. |

The London Medical Record.

WEDNESDAY, APRIL 1, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

WILKS ON THE PHYSICAL EXAMINATION OF THE CHEST.

The following instructions for examining the chest are taken from a lecture by Dr. Wilks, published in *Guy's Hospital Gazette* for February 28, and March 7.

Form.—You first of all expose the patient's chest, and look at its form. This may at once give you some information as to the general structure of his figure and temperament. Any alteration of the shape of the chest has usually existed from childhood, and may be inherited, but it is seldom congenital. The causes instrumental in producing the change of shape may be accidental, but many of these causes, being dependent on the constitution of the parents, may be regarded as indicative of a particular temperament. Abnormal chests may be unusually large or small. The former are usually acquired at a later period of life, the latter in infancy. At birth the chest is usually well-formed, and its circumference nearly circular; and it is afterwards that alterations take place in its shape. The changes depend mainly upon the state of the lung within, and also upon the condition of the bones. Anything which prevents due expansion of the lung necessarily shows its effects on the case which holds them. Any inherent weakness on the part of the infant, or acquired debility from want of food, might prevent a proper inflation of the lung, or, if once inflated, might cause a return to the fetal state or an 'atelectasis' of parts of them. A bronchitis, by causing closure of the tubes, might necessitate a collapse of the lower lobes, and thus bring about a non-expansion of the chest.

You can see how, from a want of vigorous inflation, a chest might remain in a contracted condition, and become permanently a long and narrow chest. You can also see how, from a bronchitis and want of due inflation of the lower lobes, the sides of the chest might fall in, and thus would be produced a form of thorax hollowed out at the sides which is by no means uncommon. If this condition were still further exaggerated, the lower part of the sternum would project, and a modification of the pigeon-breast would be formed. The true pigeon-breast would not be produced, I believe, unless the bones were at the same time soft; and thus the condition not only shows that during infancy there had been a deficiency in the expansive power of the lung, but the patient was the subject of rickets. In rickets the bones are soft, containing less earthy matter than they should, and show instead a red gelatinous material; you will thus observe that, when a rickety child is put on the ground, the tibiae bend forwards, the femora outwards, and the rami of the os pubis are forced inwards to produce the rostrated pelvis.

Before these deformities occur, you may sometimes see the chest flattened by pressure against the mother during nursing; and subsequently, if the soft state of the bones continue, and anything interfere with the due expansion of the lung, the chest falls in on both sides, and the cartilages thrust out the sternum in front like the breast of a bird. At the same time, the ribs become bent almost at right angles. This rickety chest is no part, as far as I am aware, of the tuberculous diathesis, and therefore you must not say, when examining the narrow pigeon-breast of an adult, that he is prone to consumption. It may be that a narrow chest shows an inherited weakness of constitution, as well as that chest which is flattened at the sides, but neither of these I should regard as the form of chest mostly met with in consumptive persons. Remember, in the first place, that subjects of tuberculous temperaments are well grown and well formed people, having the limbs straight and the head and chest large. If there be any peculiarity about the phthisical or tuberculous chest it is that it is flattened in front; that is, broad from side to side, and narrow from before to behind; thus contrasting with the barrel-shaped chest, of bronchitis. Not only is it flattened, but the sternum, instead of having any tendency to project, falls in slightly, and thus is seen to be depressed below the ribs. Whether this is a formation inherited from birth, or acquired during infancy, I cannot say, but I strongly suspect the latter. I will, therefore, ask you to remember this form, and also the narrow chest and the modified pigeon-breast having their origin in the causes named, in all of which a phthisical condition may be subsequently developed; then, also, the rickety or pigeon-breast due for the most part to the state of the bones.

A large chest, or one larger than natural, is acquired at a much later period of life, and is due to long-standing bronchitis or emphysema. This chest is really larger than the natural chest during the most forced inspiration; it is also altered in shape, being rounded or barrel-shaped, the diameter from before to behind being sometimes as long as that from side to side; the back is convex, and the sternum is curved, so that the patient looks as if he were hump-backed; the upper part is rounded and large, whilst the lower is more contracted. If you watch the breathing, you will see how it has come about; owing to the bronchitis and emphysema, and consequent difficulty in expelling the air, the diaphragm has pushed up the lungs, and the chest, continually heaving its upper part, has become permanently expanded. It is a form of chest worthy of your notice and not to be overlooked, for it contains in its appearance the history of the patient.

Inequality of the two sides.—Now, having examined the chest as a whole, and observed whether it be malformed, look and see whether the two sides are symmetrical. One side may be larger than the other, which may indicate a pleuritic effusion, or a growth, or hydatid in the liver, or one side may be contracted or smaller, which is generally an old pleurisy, either occupying the whole side or a part. If the upper part be contracted it is very often associated with disease of the lungs, and indicates phthisis.

We next come to the mode of expansion of the chest, by observing whether the two sides dilate equally. This is very important to notice, since the impaired mobility of one side necessarily points to recent or old disease on that side; and it is also

important to take note of the unequal expansion of parts of the same side, as, for example, a deficient movement of the upper or lower part, and which generally implies the existence of a former pleurisy. You must also observe whether the ribs and diaphragm are doing their work in the right proportion, for there are causes, especially those existing in the nerve centres ruling over the respiratory process, which may either paralyse the movement of the chest or the diaphragm respectively, and thus we say the breathing is costal or diaphragmatic. Also in cases of emphysema and capillary bronchitis, where the lower lobes of the lungs tend to become airless; a want of due expansion of the chest is very noticeable at its lower part, while the upper part is heaving at every breath.

Mode of Breathing and Rhythm.—You will first observe if breathing be quickened. This may be simply nervous in persons who are well. If associated with acute illness, it should make you at once suspect some inflammation in the chest. If the increased rapidity have been constant for some time, you may suspect a chronic disease, as phthisis. Dyspnoea is difficulty of breathing, and the term should be used in no other sense. It means the cases where the air enters the lungs with difficulty, owing to impediment in the air-passages, and is therefore applicable to cases of laryngitis and bronchitis. A third form of altered breathing is seen in the case of breathlessness, shortness of breath, or cardiac apnoea. This is not dyspnoea; there is no difficulty in getting the air into the chest, but the breathless condition is due to the irregular manner in which the blood reaches and passes through the lungs. You must remember that there is an intimate relation between the action of the heart and the respiratory process. The heart beats four or five times to every respiration, and as much blood as is sent in on one side is received on the other. It is very evident, therefore, that to preserve the equilibrium any increased activity of one organ should be reciprocated by the other, and this occurs in active exercise, or in febrile conditions; but in any disease of the lungs inducing impediment to the flow of blood the heart suffers; it becomes overloaded, the venous system gorged, and serum at last exudes in the form of dropsy. In like manner, if the heart be acting irregularly, or be weak, and therefore cannot propel the normal amount of blood into the lungs in a regular manner, or cannot receive it in due quantity on the other side to propel it onwards, the respiratory process is interfered with, the due relation between the circulating blood and air is deranged, and the patient feels distressed or breathless. Of course the lung may be gorged at the later periods of heart-disease, and a real difficulty of breathing may ensue, but at earlier periods the condition is one of breathlessness or apnoea. The proportion between the respiratory act and the beat of the heart is as 1 to $4\frac{1}{2}$, since the number of expirations in a minute is 16, and beats of the heart 72.

The rhythm also may be altered. It may surprise you, when I say that very different opinions have been held as to the exact mode and time in which expansion of the chest takes place during breathing; but it is so, and the fact is owing to the difficulty we experience in attempting to measure accurately the movements of the chest, since, directly an attempt is made to do so, the subject of the experiment having his attention fixed on himself, the natural process is thrown out of gear. The graphic method has lately

been used, but this is also open to the objection named. You may remember this fact as near the truth—that, if the time of one respiratory act be divided into ten parts, five would be consumed in inspiration, four in expiration, and one in rest. I am speaking of the movements only; if you regard the breath-sounds heard by the ear, you will find that there is but one continuous or single respiratory murmur. In ordinary quiet breathing this is heard only during inspiration, no sound whatever being heard during expiration. In forced breathing, some amount of murmur may be noticed at the commencement of expiration, but if so, it is quite continuous and not to be dis severed from the sound heard during inspiration. If, then, sounds be heard during expiration, they are abnormal and denote disease. They are usually produced in the bronchial tubes, and therefore are not normal sounds occurring at an unusual period, but they are really new and morbid sounds. Expiratory sounds are always abnormal, and therefore especially to be noticed.

Palpation.—We now come to the next mode of examining the chest, and that is, by laying the hand upon it, or by palpation. We have two objects in view by this procedure; first, to ascertain the amount of movement in the chest, and, second, the absence or presence of fremitus. As regards the first, the hand will often distinguish what the eye cannot; of course, in well marked cases of disease, such as pleurisy, and especially with effusion, the non-expansile power of the chest is readily discernible, but occasionally there are mild cases of pneumonia or bronchopneumonia, especially in old people, where the ear can detect nothing, but the hand can readily appreciate the difference of expansion on the two sides. I have ascertained the existence of pleurisy in a patient lying insensible by this means.

Then, again, we lay the hand on the chest for another important reason, and this is, to ascertain the modification of the vocal fremitus. This is a most important physical sign, but constantly overlooked by students. In health, when we speak, the voice vibrates through the chest, and this thrill is felt when the hand is placed upon it. Now, in some cases, as in hepatisation of the lungs, this vocal thrill or fremitus is very commonly intensified, whilst in effusion of fluid it is altogether absent. The hand will not only appreciate the difference in vocal thrill, but it will often detect a pleuritic fremitus in acute pleurisy, or a bronchial fremitus in bronchitis, or a thrill in cardiac disease, more especially of the mitral valve.

Mensuration.—Under this head we include the actual measurement of the size of the chest by means of tapes and the measurement of its movements. We include, thirdly, a measurement of the air which can be breathed into the lungs, and which is also called the vital capacity. As regards the first, I will refer you to your books, where you will see various kinds of apparatus used for the purposes of measurement; some of these taking the form of the chest, and others, which are graduated, enabling you to compare the size of the two sides. There are also instruments which, by being placed on the chest, move the hand of a dial, and thus enable you to measure the amount of movement.

The vital capacity, or amount of air breathed, is taken by means of a spirometer; and I will here remind you of what you have already learned on this subject, because the facts are applicable to cases of

disease. You know that, when you breathe, the lung undergoes only a moderate amount of expansion and contraction; when you have expired to the utmost, the chest is still full of air-containing lung; just as a river still contains water when the tide has ebbed. This air, which corresponds to the difference in amount between that in the inspiratory lung and that in the expiratory lung, is called the tidal air. The air which remains in the lung after the most forced expiration, is styled the residual air. Now, in ordinary inspiration we do not inflate the chest to the very utmost, but if we do, we breathe in an additional, amount of air, and this in forced inspiration is called supplementary. Such a condition occurs when one lung is diseased or compressed, and additional work is thrown upon the other; and it is for this reason, therefore, very important to notice. You may also remember that when in the dead body you open the chest the lung collapses, but if it be taken out and examined, it will be found still to contain air, and it floats in water; this air is called the persistent air. In some cases, however, as in pleuritic effusion, every particle of air may be squeezed out of the lung: it is then a fleshy mass, and is said to be carnified. The amount of respirable air is the difference between that in the fully expanded lung and that in the most forced expiration—or the tidal and supplementary air together. The spirometer has been found of little use in practice, owing to the difficulty there is in making persons understand how to use it, and then again because the amount of expansion depends upon other circumstances besides the size of the chest; as, for instance, the muscular strength of the patient; thus, a person used to athletic exercises would show a higher range on the instrument than one whose chest was of equal dimension, but who was fat and had led a sedentary life.

(To be continued.)

JAGIELSKI ON THE VARIOUS PREPARATIONS OF KOUMISS AND THEIR USE IN MEDICINE.

Dr. V. A. Jagielski contributes two articles on koumiss to the *British Medical Journal* of February 4 and March 7. The following is an abstract.

Every educated person has heard that the Tartars drink 'koumiss,' the milk of their mares, in a state of fermentation, and that the Russian Government has established koumiss institutions in Samara, Orenburg, Moscow, Petersburg, &c., for a resort of treatment in chronic chest-diseases. We also know that in all those places mares from the Tartar steppes have been expressly imported. The original koumiss, therefore, is made from mare's milk; but the milk of all animals is convertible into koumiss; and in Dr. Jagielski's opinion, cow's milk, which comprises all the nutritive requirements of the human body, is an equally good raw material, if not better than mare's milk, because it affords facility for varying the composition and consistence of the koumiss produced, according to the indications of particular cases; besides, it offers the great advantage of being free from any disagreeable odour and taste, unlike mare's or goat's milk. The various sorts of koumiss used in Great Britain are: full, medium, whey, and diabetic koumiss, and 'Bland,' showing a series of consistencies from the thickest to the thinnest fluid. Qualitatively, however, the koumiss from different kinds of milk may be considered uniform.

The changes which koumiss undergoes while fermentation goes on in the bottles are represented in

three gradations, designated as nos. 1, 2, and 3. The fermentation, once started, will continue, no matter how cold the temperature, or how closely the koumiss may be corked in bottles. In all cases koumiss is a milk-like fluid; in its fresh (no. 1) state it is a still liquor, and has an agreeable sweetly acidulous taste; as it approaches the no. 2 gradation, it becomes more acidulous, assumes a sparkling character, and requires to be drawn from the bottle through a special tap. In no. 3, the sweet taste is entirely replaced by the acidulous, and the koumiss rushes through the tap in a rich creamy foam. These changes progress so rapidly in warm weather that the bottles should be kept in a cold cellar, and treated with the same care as Champagne wine.

A. or Full Koumiss is made from cow's milk, preserving the whole of the cheesy matter and as much of the butter or cream as is compatible with digestion and manufacture. It is adapted for cases of great emaciation and weakness of the digestive organs; when little liquid and no solid food can be taken; also for all complaints which are not of a febrile character, the bodily temperature especially not exceeding 100° Fahr., and for patients who have previously improved under the medium koumiss.

B. or Medium Koumiss is the artificial representant, as nearly as possible, of the mare's milk koumiss, and can be made by mixing ass's milk with cow's milk in the proper proportions, or by adjusting the natural components of cow's milk alone, so as to diminish the cream and butter and augment the lactose and salts, thus making the koumiss more easy of digestion. It is suited to delicate or sensitive stomachs, which revolt against the buttermilk taste of the full or A. koumiss, in which the cheesy matter proves too rich; and it is also a more sensitive koumiss, of more agreeable taste, so as even to satisfy a very capricious palate. The specific gravity of B. koumiss varies between 1.035 and 1.070 in its fresh state, though by the process of fermentation it may sink below 1.028, in consequence of the lactose breaking up into lactic and carbonic acids and alcohol. The molecular condition of this koumiss is so uniform, that the cheesy matter when separated in layers can easily be reduced, by shaking, to a homogeneous state, and no flakes are then noticeable, as in the mare's milk koumiss. In a well fermenting koumiss, the precipitated cheesy matter dissolves on the tongue like snow-flakes, with an acidulous and pleasant sensation. No wonder then that it does not give the stomach the slightest trouble in digestion or absorption, and is easily borne in larger quantities, so as to replace readily loss of flesh in wasting diseases.

Of this B. koumiss Dr. Jagielski presents the analytical results obtained by Wanklyn. A quart bottle of this (obtained from Messrs. E. Chapman and Co., the manufacturers in London) holds about 12,000 grains of koumiss. It was examined when twelve days old; spec. gr. at 62° Fahr., 1028.

| | |
|----------------------------|----------------|
| Water | 10,662 grains. |
| Alcohol | 192 " |
| Caseine, albumen | 128 " |
| Lactose | 582 " |
| Lactic acid | 130 " |
| Fat | 36 " |
| Ash | 90 " |
| Carbonic acid | 180 " |
| <hr/> | |
| 12,000 | |

The 90 grains of ash contain, approximately, 60 grains of phosphate of lime, and 30 grains of mixed

chlorides of sodium and potassium. 970 grains of solid respiratory and plastic food are, approximately, contained in every quart bottle, according to Wanklyn, and each of its elements is in a state to promote digestion of the others by the feeblest stomach. The following analysis of mare's milk koumiss, made by Hastier, a chemist of Moscow, may be compared with one of E. Chapman's medium cow's koumiss, in London, made by Wanklyn.

Mare's Koumiss. Medium Cow's Koumiss.

| | | |
|--------------------|----------------|----------------|
| Alcohol . . . | 1'65 per cent. | 1'60 per cent. |
| Fat . . . | 2'05 " | 0'30 " |
| Milk-sugar . . | 2'20 " | 4'85 " |
| Lactic acid . . | 1'15 " | 1'08 " |
| Caseine, albumen . | 1'12 " | 1'07 " |
| Ashes or salts . | 0'28 " | 0'75 " |
| Carbonic acid . | 0'785 " | 1'50 " |

Thus the caseine in both kinds of koumiss is the same to a fraction; the butter or fat in the medium koumiss is much less, for the simple reason that it is not advisable to send out the koumiss *à longue course* with all the fat contained in the milk, as it decomposes too quickly into butyric acid, which is deleterious to the digestive organs. Further, the lactic acid and alcohol show no difference worth considering; but the lactose in the medium koumiss is twice as much as in mare's koumiss, if Hastier's analysis deserve as full credit for correctness as Wanklyn's does, whose reputation as an analytical chemist is undeniable.

C. or Whey Koumiss, contains neither butter nor caseine, but some albumen, lactose, lactic acid, alcohol, the salts, and carbonic acid. It may prove useful as a beverage in diseases with even strong febrile reaction, with copious or excessive expectoration, perspiration, or diarrhoea, either in plethoric or in strong constitutions, which do not require an increase of weight, or in patients with inflammation or fever. Whey supplies the body with but little nourishment, and therefore it can never be applied to the purpose of a proper plastic treatment; but it decidedly promotes the appetite and digestion, and, as a cooling and refreshing drink, it calms irritation.

The 'Sparkling Bland,' a diluted and still more pleasant form of whey koumiss, may, in febrile disease, be used as a refreshing acidulous drink; and it will prove more convenient, as bland will keep for a long time, and may be agreeably flavoured with ginger, lemon, orange, &c.

D. or Diabetic Koumiss, contains, according to Wanklyn's analysis, 1'6 per cent. of alcohol, 1'1 per cent. of lactic acid, and not more than 1'1 per cent. of lactose. It is particularly suitable for the treatment of diabetes, to increase weight, to allay thirst, to excite the action of the skin, &c.; and it appears less important how much urine and sugar are excreted, as long as the patient's weight and strength are increasing; besides, we need not restrict the diet in the usual severe way. If the skimmed milk treatment, the butter-milk cure, or Professor Cantani's lactic acid treatment, have given such good results, koumiss is still of more value, as it acts as a ferment in decomposing within the body all saccharine matter, and is an easily absorbable and strengthening plastic nourishment; otherwise Dr. Jagielski cannot explain its beneficial effects on this disease, even as *ultima ratio*, when the tongue appears parched, and the patient seems skin and bone and thoroughly exhausted. The complication with lung-disease appears a forcible indication for its imme-

diate use, as life will be prolonged under this treatment. The koumiss ought to be about a week old, sour and well sparkling, and the patient ought to take daily muscular exercise in open air, making the koumiss his principal or exclusive beverage as soon as a taste for it has been acquired; the diet ought to consist chiefly in meat. Glycerine, if ordered together with the koumiss, may be advantageously mixed with it in the proportion of two ounces per quart bottle of the koumiss, with which it becomes intimately united; in this way nausea and diarrhoea from the glycerine, when given alone or in water, are prevented.

Dr. Jagielski finds that koumiss exerts a striking remedial power in chronic gastro-catarrh arising from any causes, even from the abuse of alcoholic drinks, the use of tonics, astringents, styptics and sialagogues, or the habitual taking of opium. It stimulates digestion without affecting the head; it leaves the head clear for brain-work, and generally strengthening memory and intellectual power. In pulmonary consumption (chronic form) the first stages are most benefited by koumiss, but in the febrile phases of phthisis it is contraindicated like other nourishing diet, and should be replaced by whey koumiss, bland, salines, quinine, etc.; especially as long as the bodily temperature is much above normal, and does not show any marked differences between morning and evening. The greater these differences the better the effects from koumiss. If in eight or ten days the body do not begin to gain weight, the temperature do not show a declining tendency, the tongue do not clear, the appetite do not improve, then the koumiss will be of as much or as little use as any other treatment or medicine. In many of the secondary symptoms, such as dyspnoea, cough, weakness, emaciation, night-sweats, diarrhoea, etc., even where they are so strong as not to correspond with the topical process of the malady, koumiss is a prompt and powerful check to development of the morbid process; and many other cases of debility, in consequence of excessive or protracted copious secretion of mucopurulent matter or severe hæmorrhages from lungs, stomach, bowels, or after operations, childbed, lactation, find a comforting restorative. It is a physiological property of koumiss to lessen all discharges, but to stimulate diuresis and a healthy action of the skin. On the fifth or sixth day, the change in the quantities of the various salts excreted begins, and the amount of chlorides and of urea in the urine diminishes—these being probably again used to build up the new tissues; the exhausting night-sweats cease, and the quantity of urine secreted is increased in the most striking manner, when, also, all cloudy, turbid, and thick appearances of the urine change into a limpid state; in warm weather, diaphoresis takes the place of diuresis. Koumiss is therefore useful in catarrh of the urinary system with copious deposits of any kind, and in hæmaturia, but principally in catarrh of the bladder with copious mucous or mucopurulent sediment; on vaginal and urethral discharges it appears to have the same checking effect. In albuminuria it is mostly of benefit, especially against the accompanying dropsy; at all events, it improves the general nutrition and strength. In chronic pharyngitis, laryngitis, and more especially in bronchitis, even when relaxation and general weakness are very great, koumiss appears to be more beneficial than even Ems water, the properties of which it exhibits *plus* a great nutritive power. In copious expectoration, particularly from large vomicae, koumiss

will surprise anyone who will measure the expectoration in a graduated spittoon glass partly filled with water. The cavities dry out or contract, the mucous expectoration gradually falls to a minimum, and the strength and flesh increase in consequence of a more facile digestion and nutrition. The regular use of koumiss in chronic complaints should extend from six to eight weeks, at the average taking two quart bottles per day, more or less; and should there be a recurrence of any of the symptoms, they may be checked at once by a repetition of a short course, or even a few bottles only. Should the koumiss prove too acidulous, a little sugar or syrup with some fresh milk will correct its taste; a small quantity of Champagne wine with it will augment the alcohol in a very pleasant way, if necessary. The weaker the patient is, the more frequently he ought to take small quantities of the koumiss, every 15 or 20 minutes an ounce; with his meals a wineglass full, and as much for tea and breakfast, increasing the doses gradually and in proportion to its good effects. All other fluids, oily, pickled, salted, smoked food, and all strong condiments, should be avoided during its use. When the secretions are impaired, as in constipation, biliousness, catarrh of duodenum and bile-ducts, &c., no. 1, or fresh full koumiss, must be employed, because of its mild aperient effect; or no. 2 and 3 koumiss must be mixed with half of fresh sweetened milk at the moment of drinking, to produce the same aperient effect. No. 3 is astringent. In conclusion, koumiss, although not a specific against consumption, is an easily digestible excellent nourishment, a pleasant dietetic remedy, which rapidly improves digestion and nutrition, and is particularly suited to heal the relaxed condition of the mucous membranes, and coincidentally to increase strength, weight and good spirits. To mention all diseases for which the koumiss treatment is applicable would be irrational, as every disease may reduce nutrition and strength, even the fracture of a bone or a simple cold, and in such conditions koumiss is indicated. It is now settled beyond question that it is wonderfully suited as a form of nourishment for badly nourished, wasted, rachitic or scrofulous children, or for convalescents; and also that it can often cure cases of obstinate chronic diarrhoea, or old catarrh, provided the patient like the remedy. For purely drug substances, and especially for cod-liver oil, it is an admirable succedaneum.

KROENLEIN ON THE TREATMENT OF WOUNDS.*

The treatment of wounds is one of the great questions of surgery of the present time, and Dr. Kroenlein's book is a valuable contribution to the efforts made by modern surgeons to answer this question in a satisfactory manner.

The method of open treatment of wounds was first recommended in Germany by Bartscher and Vezin, and has afterwards been advocated by Professor Burow of Königsberg.

Dr. Kroenlein compares two well-marked periods, where different treatment has been adopted in the surgical wards of the hospital of Zürich: 1. the period of 1860-1867, under the direction of Professor Billroth,

where the wounds were covered in an ordinary way; and 2. the period of 1867-1871, under the direction of Professor Rose, where the open treatment was executed in a thorough methodical manner.

In order to have some categories for comparison, he has selected out of the whole number of surgical patients the following classes of cases: 1. amputations: 2. extirpations of the mamma: 3. compound fractures: 4. accidental surgical diseases.

The results of the two series were, as regards mortality per cent., as follows:

| | First Period. | Second Period. |
|---------------------|---------------|----------------|
| Thigh | 86.1 | 35.7 |
| Leg | 58.3 | 18.1 |
| Foot | 35.2 | 20.0 |
| Upper-arm | 55.5 | 14.0 |
| Fore-arm | 16.6 | 0.0 |
| Hand | 0.0 | 0.0 |

Critical researches by the author show, that this remarkable result was due neither to the age and sex of the patients, nor to the method of amputation, but entirely to the after-treatment.

The bleeding vessels were carefully tied. Secondary hæmorrhage occurred less in the second period than in the first; but, corresponding to the greater number of ligatures, healing by first intention was more rare in the second. Necrosis of the stump occurred in the first period only in 21.3 per cent. of the cases; in the second in 32.7 per cent. Retention of pus was observed in the first period, in 11.4 per cent. of the cases; in the second only in 3.4 per cent. The time of healing was in general longer during the second period; amputations of the leg and the upper extremity required three weeks more for healing under the open treatment, while amputations of the thigh required nineteen days less during the second period.

The cases of extirpation of the breast had a mortality of 32.3 per cent. in the first period, and 13.6 per cent. in the second. The time of healing for this operation was 43 days, if treated in the ordinary way; 67 days under the open treatment.

Of the cases of compound fractures which were treated in the conservative way, 25.5 per cent. died in the first period; 21.5 per cent. in the second.

Of accidental diseases, there occurred pyæmia and septicæmia during the first period in 146 cases amongst the total number of 4,000 patients; during the second period in 19 cases out of 2,300; thus giving 3.65 per cent. for the first, and 0.8 per cent. for the second period. Respecting only those cases referred to in the above classes, viz., the amputations, the extirpations, and compound fractures, pyæmia occurred amongst the 260 cases of the first period in 22.6 per cent., amongst the 172 cases of the second only in 6.9 per cent.

Erysipelas more frequently occurred in general under the open treatment; namely, in 148 cases out of the 7,000 patients of the first period, or 3.7 per cent., and in 127 cases out of the 2,300 patients of the second period, or 5.5 per cent. Notwithstanding, this disease was less often observed in the amputated of the second period (7.0 per cent.) than in those of the first (9.2 per cent.). Respecting the other categories, the first period showed an advantage over the second. Dr. Kroenlein thinks that ventilation, which was more energetically executed in the second period by opening the doors and windows of the wards, may have had an influence on the originating of this disease. The table of temperatures of the wards sometimes shows a temperature of 40° to

* Die offene Wundbehandlung, nach Erfahrungen aus der chirurgischen Klinik zu Zürich. By Dr. R. U. KROENLEIN, Zürich: 1872.

50° Fahr. which, we must agree, may not only be disagreeable but also noxious to open wounds. However, the imperfect state of ventilating and warming institutions of the infirmary did not admit a higher temperature without corrupting the air.

There can rarely be a better opportunity of comparing two different methods and of proving what the effect has been than this; because, except the treatment, there was no change in the hospital as regarded the wards, beds, nourishments, ventilation, water-supply and other arrangements.

The numbers referred to are large enough to refute the objection, that a greater number would perhaps have shown a different result; and notwithstanding in the first period there were 140 amputations and only 85 in the second, and we may suppose that all the wanting 55 cases would have died, even then the result of the second period would not have been worse than in the first.

The advantages of the open treatment seems to be the following.

1. There is no pressure or constriction by dressings.
2. An irritation of the wounds by changing the position and external applications is avoided.
3. There is no danger of infecting the wounds by impure articles.
4. The danger of retention of matter is small.
5. The state of the wounds may be controlled at any time by simply lifting the coverlets.
6. As healing by the first intention is given up, as many ligatures may be applied as are desirable, and thus secondary hemorrhage may be better avoided.
7. The air of the wards is not infected by emanations from the dressings, as is the case in other methods, except Lister's.
8. There is less need of material for dressings, therefore less expense.

It seems that these advantages will recommend the open treatment not only to large hospitals, where constant inspection by medical men is possible, and to medical schools, where regular observation of the wounds by the students is very desirable for instruction, but also for the practice of war, where the material for dressings is often bad and infected, or not to be got in a sufficient quantity.

There are two points in which the open treatment is certainly inferior to other methods, specially to Lister's antiseptic method; viz., the renunciation of healing by first intention, and the rather frequent occurrence of erysipelas. This latter, however, may be avoided by sanitary means. And if a surgeon think that healing by first intention is possible in a special case, he may adopt for this case any other method which he may think best.

Dr. Kroenlein, indeed, has done well to carry out the open treatment methodically and rigorously in all cases, because without this we should not have such an evident result from a statistical as well as a critical point of view.

We would warmly recommend any one who is not satisfied with this short extract to read the monograph of Dr. Kroenlein himself, because every result is drawn up with great accuracy and circumspection, and the whole gives the impression of perfect credibility. P. SCHLIEF, M.D., Berlin.

CLINICAL MIDWIFERY.

ABSTRACT OF A LECTURE ON PUERPERAL ECLAMPSIA, DELIVERED AT THE HÔPITAL SAINT-ANTOINE, PARIS. BY M. PÉTER.

Puerperal eclampsia is one of the most important affections in obstetric pathology, and has always been a subject giving rise to endless controversies and experiments, mostly from the etiological, pathogenetic, and natural points of view. M. Péter, whose post at the St. Antoine Hospital allows him exceptional opportunities for studying this disease, has given two most interesting lectures on it, of which we present the following summary. In the course of his lectures M. Péter strongly recommends the perusal of the excellent article, by M. Bailly, in the lately published *Dictionnaire de Médecine et de Chirurgie Pratiques*, to which he renders a just meed of praise. It is constantly advanced as a fact that all pregnant and eclamptic women are albuminuric; that the albumen may disappear for some hours, and that eclampsia in pregnant women without the presence of albumen forms a very rare exception. Thus there may have been recorded six or seven cases of eclampsia without albuminuria.

Two questions immediately arise. The first is what is the reason of this frequency? To this the reply is, that there is a larger mass of blood in circulation. The second is, as to whether cases of eclampsia have become more common during the last thirty years. To this the evidence of statistics gives an affirmative reply. The hypertrophy of the heart during pregnancy shows the increased amount of blood in circulation. The demands of the uterus are augmented, and the blood of the mother has to supply the nutrition of the fœtus. Therefore the maternal organism ought to benefit by this larger volume of blood; and, as a matter of fact, the woman does present both the appearance and the reality of plumpness. This fact being established, what then are the accidents which are likely to occur in such a contingency, the organs liable to be affected being the lungs, liver, and kidneys?

With regard to the lungs; as the mother is obliged to make blood for two, we find pulmonary oppression, and when this symptom is increased, hæmoptysis. If the heart be diseased, with presumable mitral insufficiency, we meet with double pulmonary congestion. These facts declare themselves and these accidents appear towards the fifth month of pregnancy. With regard to the liver, we generally find simple icterus; acute icterus is uncommon.

We now proceed to consider the accidents to which the kidneys are liable during the pregnant state. In the same way as the mother makes blood for two, so she makes urine for two. The analyses of the urine and its elements demonstrate that there is a larger quantity of urea in the pregnant woman; and M. Quinquaud has found that, instead of 22 to 24 grammes in the twenty-four hours, she eliminates 30 to 38 grammes of this substance. A larger quantity of blood implies greater pressure and consequently more filtration, when not only albuminuria, but discharge of serum with the urine occurs.

According to the writings of Charles Bernard and the negative deductions he has drawn from his experiments, urea is not the cause of eclampsia, any more than is carbonate of ammonia. Neither is it uræmia,

THE *Chicago Post and Mail* gives the following as the immediate cost of a first-class baby:—Physician, \$50; midwife, \$25; wet nurse, \$50; dry nurse (one year), \$150; clothing, \$200; baby carriage, \$25; total, \$500.

nor ammoniæmia nor creatinæmia; but, according to M. Péter, creatinæmia. M. Quinquaud, who has made three analyses, found, instead of 6 parts of extractive matters, 21 per cent. in the first, 19·2 per cent. in the second, and 18·3 per cent. in the third.

The frequency of puerperal urinæmia has been increasing, a fact proved by M. Charpentier's inaugural thesis, in which he gives the following statements compiled from the records of the Hôpital des Cliniques during thirty-eight years: From 1834 to 1843, seventeen cases; for 1844 to 1853, twenty-seven cases; from 1854 to 1863, thirty-five cases; from 1864 to 1871, fifty-four cases.

MM. Andral, Gavarret, Becquerel, Rodier, and Reynauld have demonstrated that pregnant women have fewer red corpuscles, whence it has been concluded that all pregnant women are anæmic. M. Reynauld has analysed the blood of thirty-four pregnant women; the normal state of the blood-corpuscles is 127 per 1,000, but this observer counted 145 in one instance, 127 in another, from 125 to 120 in six cases, and from 120 to 195 in twenty-six. Thus it is evident that one-fourth escaped anæmia; besides which, before having arrived at that conclusion, it would have been necessary to analyse the blood of those women before they had reached their physiological state for the time being, in view of the anæmia possible before, during, and after pregnancy. The anæmia of pregnant women does not rest on any logical interpretation, and tocologists commit a *petitio principii* when they refer pulmonary oppression, spitting of blood and albuminuria to anæmia, by referring the eclampsia of pregnant women to anæmia of the bulb. This affection has also been termed serous plethora, a term to which we give our adhesion; but then the patient has serous blood: that is to say, blood less rich in corpuscles, giving rise to congestions of the liver and kidneys, which leads to icterus, voiding of serum, &c. If the bile were secreted by a gravidly congested liver, M. Péter believes that we should find in it serum, leucocytes, and blood-corpuscles.

The question is briefly as follows. Must we prevent congestion in the region of the kidneys? To answer this question, we must divide it into two branches: 1. How to foresee the accidents; 2. How to prevent them. For the first object, M. Péter recommends that the urine of all pregnant women should be examined. If, on the one hand, he note the presence of serum towards the fifth month, and, on the other, symptoms of cephalalgia, he is on his guard. The headache is very painful; it is seated in the anterior portion of the cranium, rarely in the occiput; at first it is fugitive, only appearing at certain times, and subsequently becomes persistent. 'Unhappy is the patient,' says M. Péter, 'in whom this symptom becomes persistent.'

After headache, visual troubles come on, troubles which consist in a difficulty of grasping the outlines of objects. The patient is unable to read for many minutes at a time, and she vomits if she wish to continue reading. She sees coloured spots (irisation) in consequence of want of accommodation, and may subsequently be affected by amblyopia, hemiopia, or amaurosis, going on to total blindness—a stage when the attack of eclampsia is not far off. The ophthalmoscope gives no indication; the transparent media are intact, and there is nothing in the retina. The hyperæmiæ, which cause these functional troubles, occur in the cerebral centres. M. Bailly has observed

a little suffusion in the conjunctiva, especially at the level of the oculo-palpebral folds, a kind of serous chemosis.

There are other prodromata equally conclusive with those already enumerated, one of them being a feeling of oppression at the epigastrium, as if there were continuous pressure on the epigastric cavity. This may probably be a species of aura seated in the pneumogastric nerve, a view of the case warranted, in M. Péter's opinion, by that other important and significant phenomena, dyspnœa. Vomiting forms another highly important symptom. The attacks are frequent, and the matter ejected consists of stomachic mucosities, bile, and food, when the sickness comes on after a meal. Finally, vertigo, dulness of the intellect, insomnia, or comatose sleep and restlessness, are observed.

Having thus enumerated the prodromata of the eclamptic attacks, M. Péter proceeds to consider the causes of urinæmia, which have been classified as:—1. The compression of the inferior vena cava and the renal vena by the gravid uterus; 2. Double pregnancy; 3. Triple pregnancy; 4. Rickets. These eclamptic attacks mostly come on from the fifth to the ninth month, and especially in the ninth month.

On this point M. Péter's conclusion is, that the congestion is in direct relation to the quantity of blood in circulation, and the quantity of blood is in direct relation to the double or triple alimentation which the maternal organism is obliged to bear, and which it must supply. The greater the functional need the greater the purificative need; whence arises a functional hyperæmia in proportional relation to the needs of two or three organisms. M. Péter, taking heed of the most salient facts, recommends blood-letting as a preventive measure, which is also advised by Cazeaux and Beau. The latter only takes away 60, 90, or at the most 120 grammes; M. Péter makes his minimum quantity 150 grammes, with the addition of the removal of blood by cupping in the region of the kidneys.

Bloodletting is also extolled as a curative measure by M. Péter, MM. Depaul, Dubois, and Cazeaux; it does not always cure, but it is sure to give immediate relief. In reference to this practice, Holz wrote to M. Charpentier that 'of all the means employed, bleeding has proved the least unreliable.'

A second method is to give emetics in contra-stimulating doses (*doses räsoriennes*). The third plan is the use of anæsthetics, particularly chloroform, a plan which has its partisans, its neutrals, and its enemies; that is to say, it has been powerful in the hands of the first-mentioned, useless with the second, and mortal when employed by the last. As surgical treatment, M. Péter recommends artificially induced accouchement, especially where the medical treatment has failed.

Eclampsia is a most serious affection. A great proportion of the sufferers from it die, and if they recover the cure is not complete, and Bright's disease is a certain result. Amongst all the accidents to be dreaded as likely to carry off the patients, one of the most serious is uterine hæmorrhage, a result of the typhisation of the blood, an accident first observed by Blot, and which cannot be arrested by any expedient whatsoever.

RECENT PAPERS.

Retroflexion of the Uterus, and its Relation to Conception and Pregnancy. By Dr. Stadfeldt. (*Ugeskrift for Læger*, Nov. 8.)

PSYCHOLOGY.

THOMPSON DICKSON ON THE FUNCTIONS OF BRAIN AND MUSCLE CONSIDERED IN RELATION TO EPILEPSY.—The object of the writer, Dr. J. Thompson Dickson (*Journal of Mental Science*, October, 1873), is to discuss some of the recent opinions as to the nature of epilepsy, and in particular those of Dr. Hughlings Jackson, who regards the epileptic phenomenon as the result of a 'discharge' from a damaged portion of the brain, which he speaks of as a 'discharging lesion.'

Dr. Dickson's own views have been already stated in the *British Medical Journal*, November, 1867, in the *Journal of Mental Science*, July, 1869, and in the *British Medical Journal*, June, 1870, and he is of opinion that: 1. Epilepsy is a contraction of the cerebral capillaries and small arteries, the order of its stages in epileptic attacks being, first, irritation of the brain, either direct or secondary to exhaustion; secondly, contraction of cerebral capillaries and small arteries; thirdly, cerebral anæmia, and consequent loss of consciousness; 2. The muscular contraction and spasm, with all the phenomena of epilepsy, are secondary, and not essential or constant, but are all manifestations of imperfect nervous control, or a loss of balance between the nervous and other systems.

On certain points pathologists are agreed. We know with certainty that the seat of the lesion or lesions is the surface of the brain. The views of Drs. Bright, Wilks, and H. Jackson on this point are confirmed by Dr. Ferrier's well-known experiments by faradisation applied to the cerebral surface. And that there is a condition of anæmia and contraction of the vessels at the time of the seizure, is proved by the experiments of Kussmaul and Tenner, by Dr. Dickson's own, and by observation of the pallor associated with the invasion of epilepsy.

Dr. Dickson disputes Dr. Jackson's theory that the normal function of nerve-tissue is to store up and expend force, which theory, he says, involves the notion that the nerve-force behaves as static electricity, and is capable of being accumulated in the cells of the grey matter, as the electricity is accumulated and discharged from a plate or jar, which he thinks not only improbable, but impossible. 'That the nerve-cells are capable of storing up motion in some mode or modes, is only in a very limited sense true; the principal modal changes which go on in the brain are chemical.' The function of muscle is contraction and movement, and, when muscles are perfectly normal, they will, if liberated from control, perform their function spontaneously, and will continue to perform it until their potential energy is exhausted. The new-born infant, and the new-born cow or horse, move, not from mandates sent to their muscles from their untutored brains, but from spontaneity, from the tendency of the healthy muscles to perform their function. The seat of control over each muscle is the region or spot in the grey matter of the brain wherein its first motions were recorded, and which thenceforth was destined to become the controlling centre of its motion. That we may have loss of function of any organic tissue is perfectly true, but that we ever have over-function does not seem to be strictly physiological, or possible; that a tissue like the brain should 'store up more force than in health,' seems also impossible. The function

of the brain may be interfered with, and become irregular or cease; and as the healthy brain's function is not to give out discharges, but to maintain control, so the badly nourished brain, or the atrophied brain, loses its power of maintaining control, and the function becomes imperfect or irregular, and under some circumstances, altogether ceases. A fact which is distinct and clear is, that the seat of the expenditure of force in any movement is in the muscles, and not in the brain. A fact recorded by Galvani, and verified by Niobi, is that the set of the current in the nerves during muscular contraction is not in a direction from the brain to the muscle, but from the muscle to the brain. It requires no direct nervous stimulus from the brain to cause muscles to contract. Healthy and well-nourished muscles will contract, as is their wonted function when the brain is removed altogether, as in the decapitated. We may, therefore, from the evidence we have, conclude that the muscular contraction and spasm in epilepsy is the necessary consequence of a loss of cerebral control. If the damage be in one convulsion only, we may have a local muscular contraction; if the lesion be in more than one, we may have contractions in several regions, or the whole brain may become anæmic, and the convulsions general.

Epilepsy, then, is not a display of sudden and ruthless expenditure of stored-up force, but is the manifestation of a condition of weakness and exhaustion, the primary seat of which is the surface of the brain. The exhibition of strength, we further see is the loss of the potential energy of muscle, which it is the function of the nervous tissue to control and guard; and in the muscular exhaustion is to be sought the cause of the temporary paralysis which often succeeds epilepsy.

G. FIELDING BLANDFORD, M.D.

LUBIMOFF ON LESIONS OF THE BRAIN IN GENERAL PARALYSIS.—Lubimoff's paper, published in Virchow's *Archiv*, vol. lvii. 1873, is founded on fourteen carefully reported cases of general paralysis, which presented themselves in Meynert's Psychiatric Clinique. The full history of each case is given, along with the *post mortem* appearances, naked eye and microscopic. Thin sections were made from specimens hardened in a 2 per cent. solution of bichromate of potass; they were coloured with carmine, and set up in gum Damar. The cortical substance of the frontal lobes was usually examined, and in some cases that of the parietal, occipital, and insular lobes, the cornu Ammonis, and other portions of the encephalon. Lubimoff reports one case in which a sort of cicatrix or wedge-shaped induration was found on the right hemisphere of the cerebellum, implicating two lobules which were glued together by a substance which unmistakably consisted of connective tissue. The molecular and nucleated layers were thinned, and Purkinje's cells almost obliterated. For the normal structure, a dense 'felt-like' substance was substituted, in which nuclei were imbedded, and which was intimately connected with the walls of the blood-vessels. Around it, the undestroyed cells of Purkinje appeared plainly sclerosed. Lubimoff supports Meynert's observations as to the intimate relation of brain-lesions with hyperæmia; that they never occur apart from it, and may be regarded as a consequence. In some cases, the vessels showed indications of obstruction during life by means of thrombi, due to metamorphosis of blood-corpuscles

into molecular masses, with here and there distensions filled with corpuscles, and in extreme cases actual rupture of the vascular walls and diffusion of the periphery (*Zerstreuung im Umkreis*) in the parenchyma of the organ. There were also found in all the fourteen cases, on and around the vascular walls, pigment-deposits of various sizes and sometimes of very considerable extent, which are taken to be evidences of previously existing congestions. Apart from these consequences of hyperæmia, the walls of the vessels presented themselves altered and thickened; their normal coats and muscular striæ being destroyed, and the thickened walls appearing to consist of a homogeneous mass, waxy in appearance. On this Lubimoff bases his term of 'waxy degeneration' of the vascular walls. The nuclei, especially at the bifurcations, appeared proliferated. Lubimoff cannot determine whether in general paralysis the vessels thicken themselves by an absolutely new growth.

The special characteristic of paralytic dementia presents itself in the changes of the nuclei of the neuroglia, which show themselves in the brains of such subjects wonderfully increased in quantity, to a degree which, according to Lubimoff, must be accepted as a pathological product, as preparations of healthy brains and of those taken from the subjects of other neuroses (*e.g.* extreme melancholy and mania), show but a slight amount of neuroglia-corpuscles in the cortical substance. (In the opinion of Boll, who has inspected Lubimoff's preparations, this observation is of the highest pathological value.)

What Lubimoff describes as nuclei of neuroglia are very fine Deiters' cells, which are well known through the works of Golgi, Jastrowitz, and Boll; his description is entirely in consonance with that of these writers, and he arrives independently of them at the result, that a peculiar intimate connection exists between the vascular walls and the Deiters' cells, as in these cases their processes are peculiarly well pronounced.

Lubimoff found the Deiters' cells most abundant in the inner layers of the gray matter bordering on the medullary substance, and on the outer layer contiguous to the pia mater; in which positions they were so numerous, that the normal appearances of the structures were lost, and their place taken by the felt-like net-work, which, as in the case of the cerebellum previously described, can only be ascribed to the interlacement in various directions of the processes of the Deiters' cells.

The morbid changes of the nerve-cells are placed under two heads; they are liable either to a degree of swelling and subsequent collapse, or to a tendency to sclerosis. In the first case, the changes of the nuclei consist in dilatation of the nucleus and diminution of the quantity of the 'surrounding protoplasm;' occasionally the nucleus subdivides so that two are found in one cell, and are not readily amenable to carmine, which Hoffman already has shown to be characteristic of the morbid ganglion-cell. Meynert considers that the protoplasm of such cells shows different degrees of molecular degeneration. The sclerosis of the cells changes them into a homogeneous wax-like mass, in which the nucleus is no longer to be distinguished, but occasionally the nucleolus. The protoplasm of such cells loses its normally fine granular appearance, the cells appear strongly refracting, with sharply defined dark contour. The changes in the axis-cylinders found by Lubimoff consist in thickening and hypertrophy.

It is deduced from these anatomical facts that as regards the pathological processes in general paralysis, the origin of the psychical disturbances is to be sought for in the anomalies of blood-distribution and its consequences. With the incidence of hyperæmia begin the changes in the nutrition of the nuclei of neuroglia, which leads to an increased development of their elements which, in their turn, take on morbid action. This is proved by the modification of the morbid appearances, according to the length of time during which the case has lasted. The treatise concludes with deductions as to how the clinical symptoms of the individual cases are explicable by their special anatomical conditions. Lubimoff agrees with Westphal that disease of the cord is a constant accompaniment of general paralysis; but he differs from him and Simon in holding that the disease can exist without pathological changes in the brain. On the contrary, he endeavours to establish a chronic inflammatory condition of the connective tissue of the cortical substance as the anatomical lesion of general paralysis.*

[Are these observations quite novel, and are the appearances described peculiar to general paresis?]

J. BATTY TUKE, M.D., Edinburgh.

RABENAU ON THE RELATION OF GRANULAR MYELITIS TO PROGRESSIVE PARALYSIS OF THE INSANE.—Dr. Rabenau (*Archiv für Psychiatrie*, 1873) says that the picture of progressive general paralysis of the insane was originally drawn from clinical experience, and one understood by it a summary of symptoms in part psychic, such as more or less advanced dementia, large delusions, &c., in part corporeal, such as lesions of motility and sensation. The psychic symptoms were most striking and accordant with each other, whilst the bodily ones were, in some instances, very different. There would be the most severe paralytic appearances in one individual, whilst in another, characteristically affected in mind, the bodily symptoms might be quite absent. Hence in these cases the delirium was generally accounted the necessary symptom, the bodily symptoms as accidental; and thus great difficulties were placed in the way of pathological investigation, for, just as the almost constant appearance of paralysis and excitement, in the most various nerve-territories, showed that here, rather than in other psychoses, palpable changes in the central nerve-organs would be found, so did attention become directed chiefly to the brain-convolutions and their connections, the membranes, on the supposition that both sets of symptoms would thereby be explained. Westphal took another view, by taking symptoms which appear in only a few paralytics, and which are peculiar to one neurosis, viz. tabes. Since he found that in many paralytics precisely the same symptoms occurred as in tabes, the probability was that a similar pathological state existed. Anyhow, he was able to show that, in such paralytics as exhibited similar symptoms to those of tabes, a gray degeneration of the posterior columns of the cord would be found. Of course this gray degeneration accounted only for the symptoms during life of the tabes; for the rest it afforded no explanation. A further step was now made, as follows. The above-named paralytics present symptoms that are constantly found in chronic affections of the spinal cord, such as bilateral weakness of the extremities, lesions of sensibility of the spinal nerves,

* Boll in *Centralblatt für die Med. Wiss.*

paralysis of the sphincters, &c. Westphal then asserted, on the ground of his investigations, that where no gray degeneration could be found there was present another disease of the cord, characterised, in fresh preparations, by granule-cells, which, as a rule, selected the lateral columns. In preparations steeped in bichromate of potash, the diseased parts were more deeply coloured than the healthy, and this lesion was found in all paralytics where the gray degeneration was absent. The question of the connection with the cerebral symptoms of progressive paralysis he left open. Of course the spinal symptoms were only accounted for, and there must be other changes in the body to account for the brain-symptoms. It has been objected to Westphal's investigations that the disease of the cord existed in those who had never suffered from general paralysis, and also that it was not universal in all cases; but it only should be sought for in those where during life the symptoms are present which depend on such lesion. If we are to agree with Westphal in the general occurrence of spinal disease in progressive paralysis, we must either drop entirely, or greatly limit, the clinical idea of what this paralysis is. In the first place, in the cases where the diagnosis of progressive paralysis is made, or the psychical symptoms do not belong to the category, we must connect the myelitis with the symptoms of paralysis alone, and, where these are wanting, there is no myelitis. Again, we must not include chronic alcoholism, which resembles progressive paralysis somewhat in the bodily symptoms, for there are both difficulty of speech and muscular weakness. Those cases too must be excluded, where tumours exist and cause symptoms much resembling progressive paralysis, but which are quite explicable by the morbid growth and not by a primary myelitis. After thus weeding the many classes of paralytics, there still remains a large number in which disease of the cord is constant. Dr. Rabenau gives twenty-six cases, agreeing with Westphal and Sander (but he thinks that the coloration test by bichromate is not always to be depended on), and whilst allowing that the cord-disease can only account for the cord-symptoms, acknowledges that, if all the symptoms are to be explained pathologically, a lesion must be looked for in the brain, which is connected in some way with that of the cord; if this were found, the cord-disease might be deemed secondary, just as it comes on secondarily in tumours of the brain, &c. Dr. Rabenau's work has been done with reference, first to certain brain-diseases which stood in direct connection with the disease of the cord, and secondly to the disease of the connecting parts, the crura, pons, and pyramids. He found in two persons whose symptoms during life could not be distinguished from those of other paralytics, that in the radiating fibres between the corpus striatum and thalamus, and even extending over the valve of Vieussens, there were demonstrable granule-cells. If instead of these there had been a softening of the same extent, the myelitis would undoubtedly have been declared secondary, and all the symptoms during life ascribed to it. In his report of the twenty-six cases, he has only noticed the granule-cells which are found lying free in teased-out preparations, not regarding those adhering to the walls of the vessels; for it is agreed generally that the granule-cells in the vessels of the cord and brain occur in the most different diseases, and therefore have no direct relation to symptoms of paralysis, &c. Anyhow, in progressive paralysis the vessels are for the most

part greatly degenerated, and this not limited to the cord, pyramids, pons, and crura. A review of the twenty-six cases shows that the pyramids are not universally attacked; they were so in only twenty out of twenty-four. The crura cerebri were only found diseased in nine instances, perhaps owing to the difficulty of examination. In the pons, the granule-cells were very irregularly distributed, so that no two sections resembled each other; hence the finding of these bodies here is more chance-work than in the limited pillars of the cord and the medulla oblongata, and this applies still more to the crura cerebri. The fact remains that, under the above mentioned limits as to what progressive paralysis is, there may be always found a disease of the spinal cord, and that disease of the brain can only be proved in a few cases, whilst the intermediate structures between the presumed lesion of the brain and the actual affection of the cord are, as a rule, to some extent diseased.

T. C. SHAW, M.D.

ROSENTHAL ON INVESTIGATIONS ON REFLEX ACTION.—The following results have been obtained by Professor Rosenthal, of Erlangen,

1. From irritation of the entire skin, as well as of exposed nerves, it appears that an appreciable interval is necessary for reflection of the irritation of a sensory nerve to a motor one.

2. This period depends on the strength of the irritation. Leaving, for the moment, out of consideration those irritations which do not excite the maximum reflex action, and comparing only those which just suffice to produce the maximum with still more powerful ones, it appears that the reflex period is shorter the stronger the irritation; and that, when it becomes excessive, the reflex period cannot be estimated.

3. On comparing two symmetrical points on the skin with one another, or on noting the simultaneously-occurring reflex twitches of two symmetrical muscles, there is found a difference of time between the reflex period of one of the skin-points and a muscle placed on the same side, and that of the same skin-spot and a muscle on the other side, the reflex period under the latter circumstances being longer. This difference may be named the 'interval of cross-conduction' (*Zeit der Querleitung*).

4. This 'period of cross-conduction' depends, again, on the strength of the irritation; for whilst it attains its maximum on the application of a certain amount, it disappears completely when the irritation is excessive.

5. 'Reflex period' and 'interval of cross-conduction' are altered by the degree of fatigue of the spinal cord. The former is considerably lengthened, and since the excitability of two symmetrically placed skin-points is not always changed to the same extent, it may so happen that an apparently negative 'interval of cross-conduction' results—i.e., that under certain degrees of strength of irritation, the reflex action from a skin-point on the same side as the muscle begins later than that from the symmetrical skin-point on the other side.

6. If an exposed sensory nerve-trunk be moderately excited in two spots as far distant from each other as possible, the reflex period of the spot more distant from the spinal cord is greater than that of the nearer one. The difference is less the stronger the irritation; not that it can be, therefore, openly avowed that from such experiments only the rapidity of the transmission of excitation in sensory nerves

can be estimated. For such a purpose, experiments should be made with very strong excitants, for by the employment of feeble ones results of little value are obtained, as shown by comparing analogous experiments on motor nerves.

7. With the peripheral motor nerves, dependence of the rapidity of transmission on the strength of excitation cannot be proved. Moderate and excessive degrees of irritation afford similar results. Since, however, a different behaviour of the peripheral sensory nerves is very improbable, one is authorised to conclude that, in the peculiarities noted in sections 2 and 4, there was something special to be attributed to the (ganglionic?) elements of the spinal cord.

8. The nearer an excited spot lies to the spinal cord, the more easily is the reflex period, as regards the 'interval of cross-conduction,' through increase of the strength of the irritation above a moderate quantity diminished. Hence it is possible, with more feeble excitants, to make the interval of cross-conduction imperceptible through two symmetrical points of skin lying near to the spine, than by employing points lying more distant. This behaviour and that under heading 6 receive an explanation from the supposition that, in the peripheral nerves, there is a 'resistance to conduction' which gradually weakens an irritation during its transmission.

In a later communication Rosenthal intends to show how the relations that he has discovered are to be made available for acquiring knowledge of the conditions of excitement in the cord. He says that they agree entirely with the most recent researches upon its structure.

T. C. SHAW.

OBSTETRICS AND GYNÆCOLOGY.

CHIARI ON SULPHATE OF QUININE AS AN ABORTIFACIENT AND OXYTOCIC.—In a lecture reported in the *Gazetta delle Cliniche*, no. 29, 1873, Dr. Chiari, of Milan, says that he has given quinine to forty patients in the Royal St. Catherine Institution of that city, and has arrived at the following results. 1. Disulphate of quinine possesses no action as an abortifacient. 2. In the artificial induction of premature labour, quinine is not to be trusted, either alone or as an adjunct to mechanical means. 3. In cases of languid, suspended, or irregular labour, it would not be sound practice to trust to the action of quinine; and, *à fortiori*, its effect must be regarded as negative when administered in cases of slight malformation of the pelvis. 4. The assertion of Ponti, of Parma, that ergot must give way to Peruvian bark, is chimerical, at least as regards midwifery. 5. When quinine is indicated by the presence of general morbid conditions during pregnancy, it should be given, not only as a remedy for the disease, but also as the best means of preventing abortion or premature labour. 6. Quinine has no power whatever in preventing or modifying morbid conditions of the puerperal state, whether of infectious or of sporadic origin.

A. HENRY, M.D.

PARROT ON THE LOCAL TREATMENT OF GANGRENOUS VULVITIS IN YOUNG GIRLS BY IODOFORM POWDER.—This serious affection is in some cases connected with convalescence from scarlatina, the sequela of a severe attack of fever, or some

similar assemblage of unhealthy conditions affecting the whole of the organism. The younger Guersant and M. Trousseau have given some most useful counsels on this subject. After the indications given by the most powerful modifying agents, these two practitioners have not feared to have recourse to the disorganising action of the actual cautery. This agent has, according to their experience, proved the least uncertain method of circumscribing the limits of the evil. MM. Rilliet and Barthez employed chloride of zinc for the same object, but these means are all very painful, and if, as it is affirmed in the *Progrès Médical*, M. Parrot, the surgeon to the Paris Children's Hospital, has succeeded in avoiding the disagreeable effects of this somewhat barbarous treatment, he will have effected great good. The topical application used at that establishment by the distinguished surgeon in question, is the iodoform powder, which is absolutely painless in use. During several years, M. Parrot has been tolerably successful in his treatment of ulcerated gangrenous vulvitis; combating it by the use of dressings of concentrated solution of chlorate of potash frequently renewed, or cauterisations with nitrate of silver. But neither of these methods, nor others needless to recapitulate, have been so uniformly successful as the iodoform. Iodoform alone, tried as a last resource after other topical applications, generally appeared to arrest the invading progress of ulcer in two or three days, and to rapidly facilitate the appearance of fleshy germs in the bottom of the wound. Iodoform in this case acts in the same way as in chancrous bubos, fungous ulcers, and hospital gangrene. But in order to attain the desired end the iodoform powder must be freely used; not the smallest portion of the wound must remain uncovered by it. When the bottom of the ulceration is very wet and the detritus plentiful, it is advisable to renew the dressing twice a day during the first two days.

The author of the article asserts that he has always very rapidly succeeded in modifying the appearance of these ulcerations by the use of this dressing, and even that he has so completely arrested their progress that none, which have been treated in the way indicated, have exceeded the size of a sixpence. It must also be noticed that this arrest of extension is accompanied by a rapid disappearance of the contiguous cedema, which raises the edges of the ulcerations and gives them a cup-like appearance.

LORAIN ON VAGINAL INJECTION FOLLOWED BY DEATH.—M. Lorain (*Gazette des Hôpitaux*, no. 140, Dec. 1873) has published a remarkable case in which death followed the use, for a girl aged sixteen, suffering from gonorrhoeal vaginitis, of an injection of a small quantity of a weak solution of nitrate of silver into the vagina. The injection was made slowly with a small glass syringe. This was followed by acute pain, considerable elevation of temperature, and vomiting. There was an amelioration of the symptoms for two or three days, but on the fourth day death occurred suddenly. There had been no tympanitis. The necropsy showed suppurative inflammation of the mucous lining of the womb. The Fallopian tubes were infiltrated with pus, and there was pus in the peritoneal cavity with diffuse peritonitis.

M. Lorain cites cases in which the exploration or simple cauterisation of the cervix has caused death, related by Bourdel and Martin, by César, Dolbeau, Béhier, and Letecuturier; with cases of Jobert de

Lamballe, in which cauterisation of the cervix with the hot iron caused death. According to M. Lorain, the injection plays but a small part in the development of these fatal accidents; the penetration of pus from the Fallopian tubes into the peritoneal cavity being explained by the contractile powers of the tubes and the tubo-ovarian nervous excitability caused by pain. Thus, a woman suffering pain and having symptoms of inflammation associated with the tubes and ovaries, is always exposed to considerable danger. The practitioner must, therefore, prohibit her from all exertion and causes of excitement, employ opiates and hypodermic injections to calm pain, prescribe emollient enemata and vaginal injections, then apply bandages or elastic collodion to the belly, and make only such examination as is strictly necessary for diagnosis.

FEHLING ON A CASE OF RUPTURE OF THE VAGINA WITH PROTRUSION OF THE BOWELS.—Dr. F. Fehling (*Archiv für Gynäkologie*, vol. v. part i. 1873) reports a case at the Gynæcological Klinik in Leipzig, occurring in a woman sixty-three years old, mother of thirteen children. Her last pregnancy was a miscarriage. The youngest child was twenty-three years old. All the labours were natural and easy with two exceptions, which happened together. In both instances the forceps were used. The last was thirty years ago; since then, she had always had a falling of the womb. Every kind of pessary had been tried but with no avail. For the last thirteen years, she had ceased to do anything for it. It invariably came down on standing, sitting, or walking, forming a tumour about the size of a child's head. When she lay down, it went up without any assistance. Whenever it caused her any inconvenience, she was in the habit of reducing it with her fingers. Whilst she was ascending the steps of the village well with a weight on her back, the womb prolapsed. She hastily endeavoured to replace it with her fingers, using considerable force. She felt something give way, and immediately the bowels protruded.

Dr. Fehling was summoned eight hours after the accident, and found the woman in a state of collapse, with the small intestines protruding from the vulva, forming a mass as large as a man's head. The intestines were cool to the touch, showed no signs of peristaltic movement, and were of a purple colour. Putting the woman slightly under the influence of chloroform, he tried to replace the bowels, which he succeeded in doing, but could not retain them in position, from want, as it seemed to him, of sufficient room for so large a mass in the abdominal cavity. A second effort was made, the patient being placed on her knees and elbows, and completely anaesthetised, but with no better result. The woman rapidly sank, and died eleven hours after the accident of shock. The *post mortem* examination showed a great increase of omental fat and a thinning of the vaginal walls.

The author states that he believes this to be an unique case, as he finds no report of any instance of ruptured vagina under such circumstances; it shows how easily the vaginal walls may be torn in a case of prolapsus uteri of long duration. In all such cases, care should be used in reducing the prolapse. He also thinks the inability to keep the intestines in position when replaced, arose from the capacity of the abdomen being diminished through the long-standing prolapsus uteri.

W. C. GRIGG, M.D.

SPIEGELBERG ON PRIMARY AND ISOLATED CARCINOMA OF THE BODY OF THE UTERUS.—Professor Spiegelberg (*Archiv für Gynäkologie*, vol. vi. part i.) relates a case where there was distinction of the posterior wall and fundus, and enucleation of the cancer mass. It occurred in a woman forty-nine years old, sterile; she had menstruated regularly up to forty-five. During the last year, she had been subject to a continuous bloody discharge. With its appearance she became affected with severe pains, more intense at night. On examination in October, 1872, the body of the uterus was found uniformly, but not very considerably enlarged, and retroflexed; it could not be redressed, and was very tender to the touch. The cervix was long, and did not participate in the swelling. The cervical canal was narrow, and discharged a profuse purulent secretion. An intra-uterine growth being suspected, an attempt was made to dilate the cervix with laminaria and spongetents, but the internal os opposite where the flexion was would not yield. It gave rise to great pain. Hypodermic injections of ergotine were used for eight days, and had the effect of making the uterus harder and shortening the cervix. In January, 1873, the patient being worse, she was again examined. The discharge was less, but ichorous and offensive. The uterus was still retroflexed, the under surface enlarged, and the cervix shortened. This being regarded as an indication of the descent of the supposed tumour, the cervix was rapidly dilated with spongetents. On making a digital examination, the posterior internal surface of the uterus was found diffusely infiltrated and covered with friable masses, extending upwards to the anterior surface.

As far as possible the whole of these masses, which filled about the hollow of the hand, were removed with the curette. The hæmorrhage was trifling, and the reaction slight. The pain and discharge ceased, and the patient improved rapidly. This operation was performed on February 8th. The pain having returned on the 24th, the cervix was again rapidly and thoroughly dilated, and projections and unevennesses were again scratched off. The elevations had extended more to the upper and left surfaces with intermediate ulcerated spaces. The bleeding was slight. Soon afterwards the patient collapsed and died the next day, with symptoms of peritonitis from perforation.

The *post mortem* examination showed extensive purulent peritonitis. The posterior surface of the uterus and the fundus were firmly adherent to the bottom of Douglas's pouch and the anterior wall of the rectum, completely obliterating the Douglas's pouch. The sigmoid flexure with its mesentery were attached to the anterior surface, and opposite the point of attachment there was a small opening communicating between the cavity of the uterus and the abdomen. The cervix was healthy; the anterior wall was infiltrated with pale yellow-coloured medullary masses.

The posterior wall, together with the cervix, only measured between one and a-half to two inches in height. The rest, with the fundus, was gone. An examination with the microscope by Prof. Cohnheim showed the carcinomatous character of the infiltration.

There can be no doubt that the operation was the immediate cause of death. The diagnosis upon which it was performed proved to be correct, viz., that it was epithelioma, and consequently the operation was justifiable.

W. C. GRIGG, M.D.

RANSE ON AN INTERESTING CASE OF VESICO-VAGINAL FISTULA.—Ranse (*Vierteljahrsschrift für die Praktische Heilkunde*, vol. xxxi., 1874) relates a case occurring in a lady after a severe confinement. The urine continued for about six months to issue *per vaginam*, and then suddenly, without any operation, ceased. After that, the catamenia came with the urine for eight years. She then underwent an examination by Ganeau, who found complete atresia vaginæ; in eight days, by means of a lithotome caché and sponge-tents, he succeeded in dilating the vagina; the vaginal portion of the cervix was made out to be quite free, except the anterior lip, which had become grown to the inner surface of the bladder. He operated with success. Within ten months afterwards she gave birth to a child, which was followed by considerable *post partum* hæmorrhage, requiring the passing of the hand to arrest it. Again she was troubled with a vesico-vaginal fistula, and underwent another operation by Nélaton, but the fistula was not entirely closed. Again, after a lapse of eight years, she consulted Ganeau, who found, a short distance from the cervix, a small opening, which he successfully closed. After that, she could never retain her urine longer than an hour, when it would run away. Ganeau could not account for it, and as all medical means failed, he ordered an air-pessary, by which means she was able to retain her urine for two hours and more.

W. C. GRIGG, M.D.

CLEMENS ON PRURITUS URETHRÆ AND PRURITUS VAGINÆ.—H. Clemens (*Praktische Heilkunde*, vol. i. 1874) treats this obstinate affection by means of grooved metal bougies smeared with an ointment containing borax and lard in the proportions of 1 to 3. Should he not succeed by this means, he uses the induced current of electricity by passing a leaden bougie, smeared with the above preparation, into the bladder, to which he attaches one pole, while the other pole is applied to the nape of the neck; a gentle current of induced electricity is transmitted for about ten minutes at a time. In pruritus vaginæ he passes one pole, with a sponge at the end, up the vagina, smeared with borax. He states that by this means he has cured the most inveterate cases in old women, and has also cured cases of chorea magna, where it was dependent upon hyperæsthesia of the urethral mucous membrane.

W. C. GRIGG, M.D.

REVIEWS.

On Food; Its Varieties, Composition, Nutritive Value, Comparative Digestibility, Physiological Functions and Uses, Preparation, Culinary Treatment, Preservation, Adulteration, &c. By H. LETHEBY, M.B., M.A., &c. Second edition.

The four Cantor lectures delivered before the Society of Arts in 1868 gave the author an excellent opportunity of dealing with the wide subject of the economy of food, and afterwards of utilising his large experience in the form of the present work. The task has been performed in a manner very acceptable to the public. Other popular works on food have also recently made their appearance; among them are the lectures on food delivered some years since by Dr. Lankester, when superintendent of the animal products and food collections of the Kensington Museum, located chiefly now at Bethnal Green.

Foods, by Dr. E. Smith, is also a re-issue of his work on practical dietary, treating food topics in very popular manner. The whole subject is large and deeply interesting, including as it does diet and the construction of dietaries fit to meet the requirements and conditions of civilised life, and we naturally seek to have placed before us all that is known on the nature and quality of articles capable of being prepared for food, whether they are of vegetable or animal origin. Dr. Letheby is highly qualified, and has well fulfilled this demand.

The nutritive qualities of different articles of food, how they can best be distributed and utilised with maximum effect upon the individual, occupy the first pages of Dr. Letheby's first lecture. Quoting from Dr. E. Smith, he fixes the amount of 4,100 grains of carbon-food, and 190 grains of nitrogen-food as the normal proportion of a barely sustaining diet for an adult.

This is known to tally with the carbon and nitrogen exhaled and secreted from the body in health and idleness.

All the various kinds of vegetable and animal foods then come under his consideration, and are compared with each other, and with the above standard. The saline or mineral foods are not lost sight of in the place they occupy in the animal economy.

Before leaving this part of the subject, he adverts to the food-supply of the metropolis, which, as he says, goes on with the regularity and precision of a machine, without government or even municipal interference, but simply through the magical power and unfettered action of free trade.

In treating of the digestibility of food, the function of nitrogenous food, the sources of muscular power, the action of fatty, starch, sugar, and saline matters, the development of heat and other modes of motion and manifestations of force, Dr. Letheby takes into account the experience of every modern physiologist, tending as it does to shake the generalisations of Liebig with regard to the quantity of azotised food needful to restore the wear and tear of metamorphosed tissue.

He must have added immensely to the lecture since it was delivered, on diet and the construction of dietaries. Some experience which has been gained from the siege of Paris is here recorded. At that perilous time, the French Government consulted the leading physicians in the city, and instructed Dr. Sée to lecture on the subject of food and dietary. It was then necessary to make attempts to maintain life with a minimum food-supply. A diet with a daily ration equal to only 94 grains of nitrogen and 2,234 grains of carbon was tried, and it was found that that amount would not sustain life, even when the body was performing no work beyond its own physiological movements. The consequences of low feeding, the effects of famine, dietaries for children, for the poor in workhouses, for prisoners, &c., are all thoroughly treated by Dr. Letheby in his third lecture.

It is of great public importance to study every method, and to find out, if possible, new and better methods of preserving food. Our naval authorities appeal to science to supplant the unwholesome junk beef of our navy and mercantile service, by some other more palatable means of preservation. The Society of Arts offers a prize for a simple and effectual means for supplying our markets with fresh meat, either from the colonies or

from South America, where, it appears, in the latter a bullock costs but 3*l*. and legs of mutton can be bought for 3*s*. a dozen.

Dr. Letheby has given full consideration to this subject, and has devoted to it several pages of his work, which are well deserving of perusal by cattle-dealers and merchants, as well as by chemists and patentees, whose intelligence is now eagerly directed to the question of food-importation as a new branch of industrial enterprise.

It is rather singular that, on the subject of 'fraudulent sophistications of food,' a subject at present extremely popular, Dr. Letheby should have been so sparing of his remarks; for a very few pages only are devoted to food-adulteration, and the Adulteration of Food Acts of 1860 and the amended one of 1872, which latter must have been in a preparatory stage for passing into law, and its provisions well known to him, have been scarcely alluded to.

It is but fair to say that this is the only weak point we can discover in his otherwise excellent book.

The author candidly says that he has only briefly adverted to the principal food adulterations; but when we consider his capabilities for such an undertaking, and knowing his early labours in this field of research, it is to be regretted that he could not have found time to embody in this part of his lectures his experience in food-analysis, and make it equally valuable with the rest of the book for those who desire to refer to it.

The numerous tables and calculations, made in accordance with modern analytical data, extending as they do into all branches of chemical and physiological research, are most valuable to working students and every one engaged in food-analysis; while, as a popular exposition of the varieties of food, their nutritive values, and how they may best be utilised profitably to individuals or to the nation, the work of Dr. Letheby stands far above anything of the kind hitherto presented to the public.

W. H. HARDWICKE, M.D.

Clinical Researches in Electro-Surgery. By A. D. ROCKWELL, M.D., and GEORGE M. BEARD, M.D. pp. 72. New York: 1873.

Lectures on the Clinical Uses of Electricity. By WALTER G. SMITH, M.D., Assistant Physician to the Adelaide Hospital. pp. 51. Dublin: 1873.

Lectures on the Clinical Uses of Electricity, delivered in University College Hospital. By J. RUSSELL REYNOLDS, M.D., F.R.S., Physician to University College Hospital. Second Edition, pp. 116. London: 1873.

The last-named of these three books on electricity is already so favourably known to the profession, that it is not necessary to say more than that the second edition, which is somewhat enlarged, fully sustains the reputation acquired by the first. Dr. Walter Smith's lectures to the Dublin students on the same subject are very good, as far as they go, but the principle of condensation has in them been carried to the furthest limit. A considerable number of very important facts has been altogether omitted; and we should advise Dr. Smith, if his little book were to reach a second edition, to enlarge it so as to become at least twice the size of the present one.

Drs. Beard and Rockwell have recorded a number of cases of various kinds of tumours treated by electrolysis, with the same candour which has

favourably characterised their previous writings. Among the successful cases are some of nævus, goitre, and epithelioma. Their experience in the electrolytic treatment of scirrhus confirms the result arrived at by ourselves, viz., that electrolysis is most effective in relieving the pain of the cancer, but powerless to destroy the tumour altogether, or to prevent its recurrence or secondary deposits. Nef-tel's far more favourable results with the electrolytic treatment of cancer are at present not corroborated by other observers. The second chapter in Drs. Beard and Rockwell's little book treats of the results of galvanisation in certain diseases of the skin. They use what they call central galvanisation; i.e. an application of the anode to the head, neck and spine, and of the cathode to the epigastrium, for about ten minutes at a time; and they think this proceeding preferable to an application to the diseased surface. They describe, amongst others, a case of severe and obstinate chronic eczema of the leg, of eight years' standing, accompanied with intolerable itching, where various remedies had failed, and where rapid relief and a permanent cure followed the treatment by central galvanisation; also cases of acne, prurigo, psoriasis, and pityriasis, which were beneficially affected. There being now such a superabundance of special skin-hospitals, and departments for skin-diseases in general hospitals, we are surprised that not one of their zealous medical superintendents has as yet thought of testing the accuracy of these American observations in practice, the present publication being by no means the first on the subject.

JULIUS ALTHAUS, M.D.

MISCELLANY.

DR. KUNDRATH, assistant to Professor Rokitsansky, has been invited to the professorship of Pathological Anatomy, in the University of Gießen.

THE WINES OF FRANCE.—During the last few days 300 barrels of adulterated wine were thrown into the Seine, by order of the judicial authorities. It contained, with a little alcohol or wine, which was even wanting in some of the barrels, water, carmine, cochineal, tincture of logwood, sulphate of alumina, potass, aniline, fuch-sine, &c.

THE PROPAGATION OF CHOLERA.—The official report of Dr. Hirsch, just published by the German Government, on the appearance and march of the cholera in the Prussian provinces of Posen and Prussia in 1873, supports the conclusions established by British and Indian observers, that the cholera is carried along the lines of human communication. The experience of late years has proved that the disease is imported almost regularly by the barks on the Vistula, the wood-rafts, and the cargoes of wheat. The author shows by a series of carefully investigated facts, that the cholera advanced into Posen and Prussia along the course which the wood-trains pursue, and followed in their track. He dwells upon the necessity of public hygiene.

TRANSFUSION OF BLOOD.—Dr. Leared writes to us as follows. Will you allow me to point out that transfusion of blood as a remedy in case of snake-bites, spoken of in your review of Drs. Brunton and Fayer's paper read lately at the Royal Society as having been proposed by these gentlemen, is not a new idea. The same suggestion was made many years ago by Dr. Cockle in his *Essay on the Poison of the Cobra di Capello* (London. 1852). He says at page 27, 'There yet remains one

mode of treatment to propose, and I do so with diffidence, from the known gravity of the operation, and the difficulty attending its performance, and only under a deep conviction (from what I have witnessed in some experiments relating to poisons), that it may be justifiably adopted under the desperate circumstances of these cases. I allude to the transfusion of blood, and would suggest a trial of it in that stage which is characterised by livid face with stertor, free blood-letting being first premised.'

CREMATION.—At a recent meeting of the Vienna Society of Medicine, a committee was nominated to consider the subject of cremation of the body, a question which for a long time has been agitated in Germany, and has been revived, *à propos* of the translation of Sir Henry Thompson's paper by Dr. Koepl. Serious objections are raised against the realisation of this idea, the practical execution of which would also present difficulties. It is not proposed to render cremation obligatory, but simply practicable. Dr. Kohn read a letter from the burgomaster and some members of the Common Council of Oderdoerling, who consented to leave their bodies, by will, to be burned, if the measure were compatible with the law. From the sanitary point of view there are no objections; at least, so thought the majority of the meeting. Dr. Schnitzler, however, remarked that in India, where combustion is often employed, the air is sometimes infected for many miles round. Chemistry must be looked to for a means of disposing of the decomposing matters innocuously. The society thought that the question ought to be studied deeply before it could pronounce an opinion, and decide on its course of action. Hence, the necessity of the nomination of a special committee. In England the matter has already gone further; by the use of a Siemens' furnace, Sir Henry Thompson has shown that it is possible to procure complete combustion without any atmospheric infection, and a Cremation Society has been formed, of which Mr. Eassie, C.E., is the secretary, *pro tem.*, and which has put forward the following declaration, to which signatures are invited:—

'We, the undersigned, disapprove the present custom of burying the dead; and we desire to substitute some

mode which shall rapidly resolve the body into its component elements by a process which cannot offend the living, and shall render the remains perfectly innocuous. Until some better method is devised, we desire to adopt that usually known as cremation.'

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| Royal Hospital for Sick Children, Edinburgh | Resident Clinical Assistant | — |
| Bristol General Hospital | Resident Medical Officer | — |
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| Caherciveen Union, Valentia Dispensary District | Medical Officer | 55 0 0 | 7,380 | 5,282 |
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| Lunesdale Union { Workhouse } | Medical Officer | 110 0 0 | 19,208 | 4,792 |
| | | { 11 0 0 } | — | — |
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The London Medical Record.

WEDNESDAY, APRIL 8, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

THE SIGNS OF DEATH.*

The most important prizes which the Academy of Sciences in Paris had to award in 1873 were those founded by the Marquis d'Ourches, in reference to premature interments. They were equally important both from the nature of the question and from the number of works sent in competition, amounting to no fewer than 102, not including a dozen which arrived too late. The principal of these prizes consisted of a sum of 20,000 francs (800*l.*), to be awarded for the discovery of a simple and popular method of recognising the signs of real death in a certain and indubitable manner; to quote the terms of the Marquis's will, 'a method which may be put into practice by poor uneducated villagers.' The other prize of 5,000 francs (200*l.*) is to be awarded for the discovery of a scientific method of recognising with certainty the signs of actual death.

A hundred years ago M. Bruhier published a truly horrifying list of fifteen persons buried alive, four opened before they were dead, and a hundred and three falsely reported to be dead, of whom the majority came back to life before interment actually took place. This list was prepared to impress the public mind with the necessity for a general legislative enactment on interments and embalmings; but the statements contained in it are utterly devoid of authenticity. Doubtless Bruhier thought that in forensic medicine, as on the stage, it is better to produce a sensation than to pay too much attention to truth; and Louis, the secretary of the old Academy of Surgery, had no difficulty in showing the exaggerations and errors of this lamentable catalogue in his *Lettres sur la Certitude des Signes de la Mort*. All these phantoms, evoked by the gloomy imagination of the credulous physician, vanish when closely looked at in a critical light, as the bad dreams of a disturbed night disperse at the first beams of daylight.

This grave question of apparent death and premature inhumation is one of great antiquity, and the involuntary terror which clings to it has perpetuated itself through ages, from generations who were ignorant to the present generation, which ought to be enlightened; and thus the fables transmitted by preceding ages have come down to us. Pliny has written an entire volume on what were supposed to be corpses who were awakened by the noise of shouting or during the funeral ceremonies. Many, according to this author, were recalled to life by the flames of the funeral pyre, from which they could

not be removed with sufficient rapidity; amongst them being many exalted personages—prætors, consuls, who 'ex ipsis elati rediere sepulchris.'

But how is it possible to accept in good faith these miraculous incidents of resurrection related by the ancient authors, and repeated in later times? Here it is Asclepiades who, meeting a corpse, has the procession stopped, the torches extinguished, and recalls the defunct to life in the presence of the astonished and greatly afflicted heirs. There, a certain Aufidius has a timely escape from the flames of the funeral pyre. He pays the undertaker without haggling over it, but revenges himself on that functionary by attending his funeral at a subsequent period. Again, a Roman matron, prematurely devoted to the funeral pyre, became a mother during the obsequies in such a manner, says Valerius Maximus, 'that a mother was delivered after her death, and a child was carried to the grave before having been born.'

Many other more modern and famous examples have no more foundation, beginning with the history of the celebrated François Cville, a Norman, or more probably Gascon captain, who in the reign of Charles IX. described himself as 'three times dead, three times buried, and three times resuscitated by the grace of God.' It is by no means true that the profession have made cruel mistakes with regard to persons apparently dead. One chronicle relates that Vesalius, the creator of anatomy, the chief surgeon to Charles V. and Philip II., raised his scalpel on the body of a still living man, and was in consequence condemned to death, and as a commutation of his sentence sent into exile in the Holy Land. Thus is history written. We search in vain in the contemporary writers for this fact relating to Vesalius. The necropsy, the condemnation to capital punishment, are equally pure inventions; and if Vesalius did go to Palestine, it was only as a voyage undertaken for the benefit of his health. In Bouillet's dictionary, we are told that the Abbé Prevôt, having fallen down insensible in the forest of Chantilly, expired under the knife of a village practitioner, charged with the judicial necropsy. At the first stroke of the scalpel the author of *Manon Lescaut* uttered a cry, and died this time without any mistake. But a rigorous inquest proved the falsity of this anticipated necropsy, and of that much deplored tragic death. The celebrated author of *Manon Lescaut* died of apoplexy, perhaps even of indigestion, after leaving a dinner with the Benedictines. The anatomist Winslow, a Lutheran converted to Catholicism by Bossuet, and who had the good luck (as Voltaire has said of Pelisson) to become enlightened, and to change his religion at a time when this change was likely to lead him to dignity and fortune—Winslow, the author of a dissertation on the uncertainty of the signs of death, introduced this phrase into his memoir: 'Have I not myself been twice condemned by the physicians to be interred (ferali addictum involucro), the first time in my childhood and the second in my youth?' But it is somewhat singular, that notwithstanding this declaration, the biographers of Winslow have entirely passed over in silence this double interment. According to the very just remark of a distinguished medical legist, when one has had the good fortune to have been twice interred without great damage, even with profit, for this example of resuscitation lived to be more than nonagenarian, and loaded with years and honours, very precise and circumstantial details of so strange an adventure are due; and it does not

* Report on the prizes founded by the Marquis d'Ourches for the discovery of a simple and popular means of recognising the signs of death.

suffice to say in a lively tone and in a careless manner: 'I have been twice interred during my youth.' One startling fact, however, in the history of these wrongfully interred personages is, that the earth lay lightly on them. Bruhier gives the case of one who lived thirty-two years after his apparent decease; another lived forty-two years, and subsequently became the father of seven children; a third lived fifty-three years, and, what is still more extraordinary, he was resuscitated after having lain underground during seven weeks. Several women likewise lived many years their second lease of life, and again became mothers.

About fifty years ago, a young preacher was attacked by syncope in the pulpit, and this syncope lasted so long that the patient heard the words of the doctor who, rather hastily according to our ideas, gave the certificate of interment for the next day, and also his bishop reciting the *De profundis* at his side. The dimensions of the coffin were taken, we are told, but towards the evening a friendly voice dispelled this dangerous sleep in time, and the next day the preacher reappeared in his pulpit. At a future period, he became a cardinal, and senator of the Second Empire, and forty years afterwards used to agitate his colleagues by the true recital of the peril he had encountered.

In our days, the examples of premature interment, so frequent in former days, have become more and more rare. If we find one from time to time in the public prints, its authenticity is open to contest; however, as soon as the authorities, in order to quiet the emotion aroused in some feeble minds by these dreary narrations, take it upon themselves to verify the fact officially, nothing of it remains, and the miracle disappears before the realities of a well drawn-up official statement.

According to the historical standard, then, the fear of premature inhumation is chimerical, and yet it is deeply rooted in many minds, in the highest as in the lowest classes of society. This fear is reproduced in Molière's couplet:

'Qui tôt ensevelit bien souvent assassine,
Et tel est cru défunt, qui n'en a que la mine.'

It is also expressed in a very forcible manner in a speech delivered in the French senate some years since, on the subject of a petition in which more rigorous preventive measures were demanded from the legislature.

'Every one of us,' said the speaker, 'has felt his pity aroused by the thought that it was possible that a man might be immured alive in a coffin. Reason itself is unsettled at the idea of that horrible struggle of an unhappy being who wakes up to find himself buried, who is resuscitated for an instant, only to succumb to the tortures of the most frightful torment ever invented by the most cruel barbarity. The grave has repeated to us the horror of these fearful dramas; in turning over old cemeteries, skeletons have been found in the coffins drawn into attitudes of the greatest desperation, the fearful contractions of the limbs betraying the last struggles for existence; the anguish of a fearful agony of which not a cry nor a groan could be heard by the living.' Certainly the filling up of this picture is masterly. It made the senators shudder; but after all it is but a literary development. If even mistakes which are now impossible with the strict observation of mortuary legislation, if fatal mistakes have really taken place, as, for instance, at the time of the great plagues, they may be im-

puted to ignorance and to the excessive haste of the people about the deceased. Medical science, whose business it is to distinguish between death and life, cannot be responsible for these errors (behind which crime sometimes conceals itself).

Besides, popular prejudices are the offspring of ignorance, and it is the province of science to destroy or at least to combat them. On what pseudo-scientific data does the fear of being buried alive rest? On the belief shared by some medical men that diseases are frequently met with, such as catalepsy and lethargy, in which death is perfectly simulated. But the facts of catalepsy (not to speak of some slight cataleptic phenomena) are so rare that even the existence of that affection may be legitimately doubted, and, *à fortiori*, the same remark may be applied to cases of lethargy. Clinical medicine often shows us certain pathological sleeps which are more or less profound, and which to inexperienced eyes may appear akin to death. But medical science ought to proclaim, so loudly that the most deaf can hear, that there is never any abolition of circulation or respiration in these cataleptic and lethargic conditions; the pulsation of the heart, the pulse, the respiratory movement are always evident; that is to say, the most positive signs of life remain manifest. Lethargy, such as it is understood and dreaded by the public, such as it has been described by ancient authors, has no existence. One of the characters in Reynard's *Légataire Universel*, exclaims—

'Quelles friponneries !

Je suis las à la fin de tant de léthargies ;'

and every serious physician will, I think, be of the same opinion as the dramatist. [The reporter says that in these preliminary remarks, the opinions expressed are purely personal, and do not compromise any one but himself, but he could not dispense with laying them before the Academy to justify his incredulity, with regard to subterranean resurrections, which age, experience, and reflection have only tended to confirm. In these peculiar miraculous matters, which are so attractive to minds having a taste for the mysterious, truth can only be eliminated by the aid of the crucible of scepticism.]

Wherefore then speak of the uncertainty of the signs of death? Certainly the phrase was not without appropriateness in the times of universal ignorance, when medicine was not as yet and could not be anything but a confused mass of conjectures; but it would be unjust now that, receiving inspiration from the progress of the physical sciences and appropriating their conquests to itself, medicine makes efforts to raise itself to the level of the exact sciences. Certainty is the term which should be made use of at the present time. The Academy has heard, and every medical man should read, the very conscientious report in which M. Devergie comments on the paper sent in to the Commission, in which he treats in a masterly manner of all the scientific and administrative questions which form part of the subject of inhumation. What does this expert show us, through the caution which a physician so well qualified in forensic as in general medicine is obliged to impose on himself? To what conclusion does M. Devergie come? To the conclusion that modern science possesses a large number of certain signs of death.

Two signs of death are derived from the stoppage of the circulation in the capillary vessels. The first of these signs consists in this: that if we apply cupping glasses to the pit of the stomach after the heart

has ceased to beat, the skin, still susceptible of being congested, gives out blood under the blade of the scarificator; while later on, the skin, henceforth dead, no longer bleeds if we again apply the scarificator. M. Levasseur, physician to the Hôtel-Dieu at Rouen, has carefully studied this phenomenon by the help of numerous experiments; and the Academy confers on him an honourable mention.

The second sign consists in the modifications presented by the burning of the pulp of the finger in the flame of a candle. According to M. Martenot, of Cordova, to whom the commission grants a reward of 500 francs, this burning produces blisters which will be filled with serous matter if life still continue, and will only contain vapour if life be extinct.

It has been said that the eye is the mirror of the soul. It might with more justice be said to be the mirror of death. Indeed, Louis had already in his time indicated the subsidence and the relaxation of the eyes as a sign of the extinction of life; and Winslow had likewise described the glairy coat, the species of veil which seems to spread itself before the cornea in dying persons (*nataantia lumina*). It has also been observed in the present day, that belladonna, which, during life dilates the pupil, and the Calabar bean, which contracts it, have no action on the iris some hours after death. Dr. Larcher, of Passy, has discovered a new and certain sign of death, the grey and cloudy spot which first appears on the external portion of the sclerotic, and at last takes entire possession of it. Here a phenomenon of local decomposition is in question, preceding general decomposition by many hours. M. Larcher's observations on this point relate to nearly nine hundred subjects, and a reward of 500 francs has been awarded to him. Another equally positive and much more rapid sign is the general discolouration of the back of the eye, which, looked at through the ophthalmoscope, appears of a deep red colour during life, and becomes pale and of a yellowish white at the moment of death. M. Poncet, a military surgeon, who has already gained a Godard prize, is honourably mentioned for his memoir, in which these ophthalmoscopic researches are made known.

The value of electricity in forensic medicine, is founded on the persistence of muscular contractility during the first hours only following death. Nysten and Hallé had already proved that loss of electric contractility is a certain sign of death. M. Duchenne de Boulogne placed very fine needles in the muscles, passed currents from the induction coil through them, fifteen to twenty hours after the presumed death, and never under these conditions saw the least motion in the needles. The academical commission grants an honourable mention to M. Crimose for his persevering efforts in the application of electric dynamics in the verification of death, and in the construction of more practical instruments.

The memoir of one of the winners of a prize, M. Molland, appears, according to M. Devergie, to be less an original work than numerical conclusions on the comparative value of all the signs of death known to science. The writer, who is attached to the office for verification of deaths in the city of Paris, has made his observations on more than fifteen thousand subjects, which he inspected several times, so as to verify the succession of the phenomena of the extinction of life. His attention was particularly directed to the violet-coloured spots which in the dead body showed themselves on the dependent part. He traced them to their origin and through their

evolution, and he has arrived at the conclusion that these cadaveric livid appearances are a constant characteristic of death, since they have never failed to be present in his fifteen thousand observations. This sign is of so much the more practical value that it generally appears shortly after death, and therefore the commission have awarded to M. Molland, hospital surgeon of Paris, a premium of 2,000 francs.

(To be continued.)

FRENCH AFFAIRS.

(From a French Correspondent.)

I see without surprise, and even with some pleasure, that my protests against the egotism and ignorance of foreign science which lie at the root of the present decadence of modern French medical science, as of so much else that has shown decadence in our country, have awakened some angry remonstrance here. I wish from my heart that they could always be as well considered and as indignantly answered as my last letter was, by a very accomplished *agrégé* of the French faculty in our most serious medical journal, the *Gazette Hebdomadaire*. As M. Hénocque gives up M. Garnier to European reprobation, and only protests for himself that the experiments of Ferrier, &c. have not been ignored in that journal, I shall willingly pass over his clever reply, and content myself with the hope that he will join me in enforcing an attention to one of the first laws of scientific progress, which he admits equally with myself. That law is, that the man of science shall profit by the illumination of cosmopolitan intelligence, instead of working with his head in a (French) bush, outside of which he can see and hear nothing, and whence he catches the distant echoes of the din in the world's workshops only to ridicule or to abuse the feeble impressions so conveyed to him.

As an example of the spirit which I deprecate, let me quote one passage from a book by an eminent compatriot, just issued from the press. M. Gallard, author of *Leçons Cliniques sur les Maladies des Femmes*, is a physician of the Hôpital de la Pitié, an officer of the Legion of Honour, and holds a high place among us. He is discussing the treatment of chronic metritis by sea-baths, which he considers very efficacious, but which are objected to by Virchow and Scanzoni. 'It might seem surprising,' he says, 'to find these two learned physiologists thus stop short at the first part of the phenomenon (temporary revulsion of blood from the periphery to the interior), without taking into account the second (the period of reaction), which is certainly the most important, if we did not see the motive of this aberration in the desire (very natural with Germans, who are always calculating) to prescribe cold affusion and sea-baths, which they condemn. Our Prussian colleagues have indeed perfectly understood that, if sea-baths are recognised as useful, it is not to the shores of the Baltic or the North Sea that patients will prefer to go to take them, and that is why they have decided that they must be hurtful.' One might have been content to treat this singularly outrageous mode of discussing a scientific question as itself a temporary aberration, but that the whole book breathes the spirit of ultra-exclusiveness, and that it is in consequence twenty years behind European therapeutics, and that a

critic in a very able journal, the *Bulletin de Thérapeutique*, picks out this passage which I had marked with notes of admiration, for sincere eulogy. He desires to benefit his readers by calling their attention to the able 'psychological diagnosis of the honest and calm physician of the Pitié.' When a French author of eminence can be found to pen such a judgment, and a critic of repute to eulogise it, my function of censorship, to which M. Hénocque takes exception, cannot in my opinion be deemed useless to my countrymen. It will not, after this, surprise your readers to learn that for M. Gallard the works of Barnes, Simpson, and Sims, which mark epochs in obstetrical practice, might as well not have been written: that he prefers in practice Ricord and Cusco's speculum, has little to say to Sims's, that the pessaries which he recommends are such as have long been superseded by every other country, that his methods of dilatation of the cervix, and of treatment of polypi and of granulations, are equally old-fashioned, and that the whole book is written as if French obstetric science occupied a lofty pinnacle of solitary glory in the educated universe.

It was in this spirit that our friend M. Garnier observes in his former review of medical progress of 1874 (in which you will not find any but a French name mentioned), when speaking of the discoveries of M. Ranvier and M. Vulpian, that these are 'things which will disquiet the Germans.' The Bismarck spectre needs to be exorcised from our laboratories and our hospitals.

WILKS ON THE PHYSICAL EXAMINATION OF THE CHEST.*

(Continued from page 191.)

Percussion.—This is by far the most difficult part of physical diagnosis, because there is no universal agreement as to the true conditions which produce the various sounds, and there is no exact definition given to the terms which are used; moreover, many writers adopt expressions of their own selection, which cannot be accurately interpreted by the reader. For instance, it is impossible to define it, or to convey in any words to you what I myself understand by the common term 'resonance;' and the same, though to a less extent, is the case with the word 'dull;' but when we read in books of such expressions as 'empty' and 'full,' the words often convey no meaning at all. I do not find fault with the attempt to give names, for it is evident that, under varying conditions, different sounds must be elicited by striking the chest; but since, at the present time, we are not all agreed as to the true causes producing them, it is impossible to use expressions which are intelligible to all. I say there is no general agreement as to how the sounds are produced, some maintaining with Piorry (who has written a poem on Percussion) that every part of the body gives out its own note on percussion, whilst others, with Bennett, have been content to teach that there are three main sounds, according as we percuss over a solid, a liquid, or air; these would be illustrated by striking over the liver, bladder, or stomach, and therefore might be styled respectively parenchymatous, humoral, and tympanitic sounds. Without systematising too much, we are generally content

to say that we elicit from the walls of the chest a given sound which varies with the condition of the ribs and their covering, but more especially according to the nature of the contents within. The sound is really produced by a vibration of the ribs which can be felt by the finger, and the note varies more especially with the contents. I have no doubt that the subject might be taken up advantageously as a simple question of acoustics, and then appropriate terms might be given. You will see on a moment's thought, that the nature of the object struck must determine a difference in the note, as also whether it be solid or hollow; the sound again varying with the character of the contents.

When one considers that percussion of an object is a simple physical method of ascertaining what is within, it is remarkable that its practice has been left to modern times; we know, if we knock at the door of an empty room, that the hollow sound produced will tell us of its condition, just as we know by striking a barrel whether it be empty or full; in the same way the builder knows by striking a wall whether it be composed of brick or lath and plaster; and when we stop on our journey at the railway station, a man comes and knocks the wheels in order to discover a flaw. One of the most remarkable illustrations of the information to be obtained by percussion occurs in *The Mystery of Edwin Drood*, the novel which Dickens had in hand when death suddenly disarmed him of his pen. It would be most interesting to know whether he gained the idea from observing the methods used amongst us medical men, or whether, quite irrespectively of us, he had merely in a fanciful and somewhat exaggerated manner described what he had actually seen performed amongst workmen. The passage is sufficiently interesting to read to you, if it be only to show how percussion is merely a matter of physics.

'Is there anything new down in the crypt, Durdles?' asks John Jasper.

'There's an old 'un under the seventh pillar on the left as you go down the broken steps of the little underground chapel. Now, lookee here. You pitch your note, don't you, Mr. Jasper?'

'Yes.'

'So I sound for mine. I take my hammer and I tap. (Here he strikes the pavement.) I tap, tap, tap. Solid! I go on tapping. Solid still! Tap again. Holloa! hollow. Tap again, persevering. Solid in hollow! Tap, tap, tap, to try it better. Solid in hollow; and inside solid, hollow again! There you are! Old 'un crumbled away in stone coffin in vault.'

'Astonishing.'

To simplify the matter as much as possible, I shall merely describe to you the four most striking different conditions in which the chest may be placed in health and disease, and which will correspond in the main to the solid liquid and gaseous already mentioned. The chest may be full of air or full of liquid, or of solid hepatised lung, or, fourthly, of the natural lung. The sounds elicited by striking the chest under these different circumstances can be imitated by taking four boxes and filling them respectively with air, water, wood, or wool. If we made a chest empty by removing the lungs, and filled the one side with air and the other with water, we should have two very different sounds produced upon striking them. If we percussed the one side it would sound like a drum, and we should have no doubt that it was hollow, and we should call the sound tympanic.

* *Guy's Hospital Gazette*, March 14.

If we struck the other side, we should elicit no sound whatever; no vibration would occur in the ribs, and therefore no note. This would be called dulness on percussion, or perhaps a better term than dulness would be tonelessness; it would be as toneless as striking the thigh. Now, if we took another chest and placed within it some wool or spongy lung; we should have necessarily an intermediate sound; we should not have the hollow sound of simple air, nor the total want of vibration as in the case of fluid, but another note would be produced. This note, produced by striking over a healthy lung, is called natural resonance. I cannot describe it to you in so many words, but you must familiarise your ears to the note, and then you will take it as a standard; any sound above it is called hyperresonant, as you have in an emphysematous lung, which increases until you reach the tympanic note, and anything below it implies the existence of more solid material within, until perfect dulness is reached.

Now the greatest difficulty in the explanation of a note exists in the case where a solid fills the chest, as when a piece of wood should have been introduced, or when, in the living subject, the lung is hepatised. You will see that dulness corresponds to tonelessness, and this very often means the non-vibratile condition of the walls from the presence of solid matter within the chest; but solids do not necessarily cause an absence of tone. Thus, it is true that, if I strike over the liver or a chest full of fluid, I have what is called a dull sound, but if I strike over the sternum or head a different note is elicited. In this case, it shows that the bone itself produces a sound; but, apart from this, the solids and fluids produce different notes, as would be seen by striking a barrel full of fluid, and a solid block of wood of the same size and shape. Such a mass vibrates, but the vibrations are shorter than in the hollow barrel, and not so enduring, and a high-pitched note is produced. This, then, is the term for a note which we often meet with in striking over a solid organ or a hepatised lung. I will take this opportunity of saying, also, that vibration and non-vibration of the chest do not necessarily indicate the presence of air or liquid beneath, for, in the case of the barrel, if a thick piece of paper were spread over its inner surface, it would not vibrate on slight percussion, and it might then be thought that the vessel was full. An analogous condition occurs in the human chest, when a thick layer of pleura lines its inner surface. This prevents vibration when the chest is percussed, and the impression conveyed to you might be that of fluid in the chest, and thus it has happened that persons have been tapped for fluid, when they have had nothing more than a thickened pleura. There is also the converse fact, that a vessel may be so full of air and tightly stretched, that it will not vibrate, and thus the hollow sound does not appear; this may occur in pneumothorax, and is sometimes met with in extreme tympanites of the belly, where, from the great stretching of the stomach and intestines, no tympanic sound is elicited. The experiment may be artificially made by blowing out a bladder, which is resonant or tympanic until stretched to the utmost, when the tympanic sound is lost.

I shall leave you with these four conditions of the chest, viz., where it is full of air, fluid, a solid, or spongy lung, as the most important, and let you learn up minor conditions afterwards. I will, however, speak of two other sounds, which it is necessary to remember. I told you that when you struck over

a hollow space you had a tympanic sound, but this term is applicable only to the drummy state produced by a very large collection of air. If the hollow be circumscribed, as in a cavity in the lung, we adopt the term amphoric, which is a sound resembling what is produced by flipping the cheeks when stretched to the utmost, or a hollow India-rubber ball. An important modification of this is the cracked-pot sound, produced under the same circumstances as before, but with the addition of a hole in the cavity communicating with the external air. Thus, it would be produced in the India-rubber ball with a hole in its walls, or it can be produced in the cheek by slightly separating the lips, or still better by striking the closed hands on the knee—the air rushing out between the fingers producing an almost metallic ring. In the case of a cavity, we request the patient to open his mouth, and then, if there be a bronchial tube leading from the cavity direct to the trachea, and we strike sharply over the cavity, a well-marked cracked-pot sound is produced. This is almost pathognomonic of the existence of a vomica, for it is seldom heard under any other circumstances; on one or two occasions, in cases of hepatisation of the upper lobe, I have heard a sound somewhat resembling it. In children also with elastic chests, it is easy to produce it by striking the walls whilst they are crying.

Under the head of percussion, I might refer to another physical condition, which becomes apparent during the act of striking. I mean the sense of resistance. When you percuss over a resonant or dull chest your finger appreciates the vibration, or the want of it, and not only this, but it is aware whether a spongy or hard substance is beneath. In the latter case there is not the slightest giving way of the ribs, and the finger appreciates, by a sense of resistance, that there is a solid beneath.

(To be continued.)

FORENSIC OPHTHALMOLOGY.

ON INJURIES OF THE EYE IN THEIR MEDICO-LEGAL RELATIONS. BY PROFESSOR ARLT, OF VIENNA.*

As a member of the Committee of Experts of the Faculty of Medicine in the University of Vienna, I have often observed that medical practitioners go to work very superficially with regard to injuries of the eye, as regards both their recognition of the fact and their judgment as to its consequences. Even in conscientiously prepared reports, it may be perceived that the authors have not been well grounded in this department. The principal cause of this appears to me to be, that most have not the opportunity of obtaining instruction in this difficult subject, which is generally passed over in clinical treatises and in text-books. The monographs on the subject—I am acquainted only with those of W. Cooper, and of Lander and Geissler—are almost exclusively adapted for specialists, and are either unknown or accessible with difficulty to most medical men in practice. I have, therefore, concluded to sketch a brief description of the injuries of the eye, with special reference to the wants of those who are required to give medical evidence in courts of law.

* *Wiener Medizinische Wochenschrift*, March 7 and 14.

[Professor Arlt assumes that his readers are acquainted with the use of the ophthalmoscope, and with ordinary modern means of investigating vision and its defects.]

I divide the injuries of the eye into three principal groups.

1. Injuries from sudden compression or concussion of the eyeball.

2. Injuries from the penetration of a mechanically acting body into the tissues, a foreign body being left on, in, near, or behind the eyeball. Injuries of the lids, of the lacrymal organs, of the bony structures, &c., are for the sake of brevity conveniently left to the province of surgery.

3. Scalds of the eyeball and lids, and injuries of these parts by corrosive agents, so far as they demand special consideration in consequence of the manner in which they are produced.

Finally, in a fourth division, some remarks will be made on the recognition of artificially produced, exaggerated, or feigned lesions of the eye.

In each of the above named groups, an anatomical arrangement (according to the individual structures) will be adopted as most convenient, and the subjects will be considered in relation to diagnosis, prognosis, and treatment. In this way only, it seems to me, is it possible to obtain the necessary instruction regarding complicated injuries. An exposition of the principles of treatment I regard as necessary, because the question often arises, whether the unfavourable result of an injury is to be attributed entirely or in part to neglect or to improper treatment.

In every case, the visual power, not only of the injured eye but also of the sound one, should be separately examined. The injured eye may be the one on which the patient has hitherto depended for his means of earning his livelihood. Later on, if the second eye become sympathetically affected, it may be necessary to have determined its power of performing its functions at or soon after the receipt of the injury. The distinction between light and shade (quantitative sensibility to light) may be lost for a time (through abundant sanguineous effusion in the vitreous humour), or permanently. As regards the amount of qualitative vision, the degree of central acuteness of sight must be determined numerically; e.g., by ascertaining at what distance the fingers when held up in mid-day light cannot be counted, and at what distance letters and objects of a certain size—such as Snellen's and Jäger's test-type—can be recognised. It must then be ascertained whether the recognition of such objects at certain distances can be brought about or improved by the use of spherical or cylindrical concave or convex glasses; and whether the necessity for such means of correcting vision is to be treated as a consequence of the injury. No less important is the examination of indirect vision—its impairment, its partial or total loss. When no finer distinctions are required, it will be sufficient to close the patient's sound eye, and to make him direct the injured one steadily towards an object (such as a finger) held at the distance of about ten feet, and to gradually carry the finger (or a lighted candle in a dark room) from the periphery of the field of vision towards its centre, and to make the patient name the number of objects held up. It is only when neither central nor peripheral vision appears obscured, and where obscurity does not set in in the further progress of the case, that an ophthalmoscopic examination may be considered unnecessary.

In ascertaining the relation between the result of the examination and the *causa nocens*, it must always be borne in mind that important abnormal conditions not unfrequently affect the eye, the existence of which, although they have already existed, has not been detected; this is necessary, in order to avoid ascribing to the injury that for which it is not at all or only partially responsible.

I. SUDDEN COMPRESSION OR CONCUSSION OF THE EYEBALL.

1. *General Remarks.*—In this category we range first those injuries which are produced by the violent action of a blunt instrument on the eye, and by which the structures of the organ are pressed together, the agent itself not being left in the tissues. The globe is then either partially bruised or injured, or is flattened for the time by a more extensive pressure. Herewith are associated the cases in which the eye is thrown into sudden and strong vibration by violence affecting it, as well as the head and the entire body.

An eye which has suffered an injury of this kind shows, immediately or after a short time, the following appearances, independently of those presented by the lids: ecchymosis of the connective tissue, cloudiness, with subsequent inflammation (suppuration) of the cornea, sometimes with, sometimes without, slight wound of the surface; bursting of the sclerotic not far from the cornea (very rarely in the posterior part); effusion of blood in the chambers of the eye; more or less evident laceration of the iris; paralysis of the sphincter (rarely spastic contraction); paralysis of accommodation; bursting of the capsule of the lens; stretching or laceration of the zonule of Zinn, with more or less change in the position and form of the crystalline lens; laceration of the choroid, with effusion of blood into the vitreous chamber, and disturbance of the functions of the retina. According to Dr. Berlin's researches, escape of blood into the neighbourhood of the corpus ciliare occurs as a result of sudden compression of the eyeball, but cannot be directly ascertained except after death. Any one of the above-named results of injury may be present singly; but generally several of them are found to co-exist.

The detection of many of the above-mentioned changes may for a time be hindered or rendered very difficult by effusion of blood in the chambers or in the vitreous humour, and afterwards by the products of inflammation or by consecutive opacity of the lens. Hence, in many cases, a decisive opinion as to the situation, extent, and consequences of the changes produced, cannot be pronounced until after observation has been continued for weeks or months.

Our attention is very often directed to injuries of this kind not only by the history, but by the signs of contusion of the lids, of the edge of the orbits, and of the head. One may, however, on finding wounds or scalds, be led away from searching for contusion or concussion of the eye.

In order to understand the immediate effects of sudden compression, it must be borne in mind that the non-compressible fluid contents of the globe—the aqueous and vitreous humours—are enclosed in membranes, which have only a limited power of elastic expansion, and that the capsule of the eyeball is surrounded for more than half of its extent by the fatty tissue of the orbit, and that, under strong pressure, the capsule may very possibly become pressed against the orbit. Partial compression of the globe at

the point diametrically opposite that to which the force is applied cannot occur, on account of the thick and elastic packing of the globe; and therefore it is unnecessary, for the explanation of the changes in the posterior part of the eye, to assume, as Dr. Berlin and others appear inclined to do, that circumscribed compression of the tissue at that part has taken place.

When a foreign body acts on the coat of the eye with a certain amount of sudden violence, and, in consequence of its physical properties (size or bluntness) does not penetrate the part, its action may be confined to contusion, or, according to its size and shape, it may lead to local cracking or flattening, while at the same moment there is no remarkable pressure of the whole globe towards the cushion of fat or (when the force acts from behind) towards the lids. On account, however, of the incompressibility of the fluid contents, cracking or flattening cannot take place without a simultaneous change in form of the whole globe. The eyeball must, if the point where the force is applied be taken as a pole, and the direction of the blow as the axis of a sphere, be widened in the direction of the equator of that sphere. Resistance in the opposite wall, spread over a large surface, can only increase this change of shape. The presence of a breach or of a circumscribed hard body in the wall towards which the globe is forced, would indeed be liable, if there were a breach, to produce protrusion or rupture, and if there were a hard body, a fissure or perforation of the sclerotic. Such conditions, however, are scarcely present in any case. Just as little is it possible for the blow to be transmitted within the eyeball to a point diametrically opposite, if we suppose that the blow is applied perpendicularly to the plane of the point attacked. When the force is not applied perpendicularly to the plane, a part of the compressing force is lost. The vitreous and aqueous humours distribute the force in all directions to the surrounding walls. Consequently, the signs of compression or laceration of the retina are not to be looked for at the point diametrically opposite that where the force has been applied. To endeavour to explain, as Knapp has done, the changes produced in the choroid opposite the part struck in the same way as the fissures of bone and intracranial hæmorrhage in fracture of the skull—by *contrecoup*, is inadmissible; since the sclerotic possesses neither the hardness nor the absolute inextensibility of the cranial bones, and especially because no rupture of the sclerotic may be present at the point where there is hæmorrhage or rupture of the choroid; indeed, rupture of the sclerotic rarely occurs at this point.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

ONIMUS ON THE INFLUENCE OF ALBUMINOID SUBSTANCES ON ELECTRO-CAPILLARY PHENOMENA. It was discovered by M. Becquerel that, when two heterogeneous liquids are separated by an organic membrane, or by a capillary space, an electric current flows, which is capable of producing chemical and mechanical effects. In this way, metals have been reduced and double decompositions obtained, which do not take place in ordinary circumstances. M. Onimus has observed (*Comptes Rendus*, March 2),

that the interposition of a layer of albuminoid substance (white of egg, or albumen of blood) between the two liquids, may cause the same electro-chemical phenomena. His method is as follows. Into a U-shaped tube he first puts albumen, so as to fill the bottom part; then he gently pours into the limbs the liquids that are to react on each other. Ere long the solutions meet in the albuminous layer, and produce the phenomena in question. Thus, with sulphate of copper solution on the one side, and oxalate of potash solution on the other, there are formed beautiful blue crystals of binoxalate of copper and potash. Similarly, with sulphate of soda and nitrate of lime, crystals of sulphate of soda and lime are obtained. These crystals, in this case, always form a granulated mass, and not stalactites (as when membranes are used). The author considers that the importance of electro-molecular actions in physiological chemistry is further demonstrated by this action of albuminoid substances. In the osseous substance, *eg.*, we may readily understand the formation of phosphate of lime. By separating, with a layer of albumen, phosphate of soda and nitrate of lime, or chloride of calcium, we obtain phosphate of lime on the side on which the phosphate of soda has been put. He draws the practical inference that it is perhaps more advantageous to administer these salts separately than phosphate of lime directly, as the production of this salt takes place readily in the system.

Further, while neither chloride of calcium nor phosphate of soda causes coagulation of albumen, there is a very manifest coagulation, or (as if) a series of membranes, in the region where the double decompositions occur. It may be affirmed, in general, that there is always coagulation, more or less pronounced, wherever electro-molecular currents are produced, even where liquids are employed which do not directly cause coagulation. This coagulation is probably due to these very currents, for it only occurs on the side which may be considered as the positive pole. Another fact is stated by M. Onimus as important in its bearing on the phenomena which occur in the animal organism. M. Cl. Bernard has shown that all the salts of iron, passing through the system, undergo a chemical transformation, consisting of a deoxidation or passage to the state of protosalt. Now, this very transformation occurs when perchloride of iron is in contact with albumen in the apparatus, red prussiate of potash being on the opposite side. A well-marked blue border was observed in two or three days, which went on increasing, and which indicated the change of perchloride into proto-chloride of iron.

A. B. MACDOWALL.

DELORE ON MATERNAL CIRCULATION IN THE PLACENTA.—At a recent meeting of the Biological Society of Paris (*Le Mouvement Médical*, February 21), M. Delore read a paper detailing his researches in confirmation of the fact, affirmed by Weber, Kölliker, Turner, and Wenckler, that the blood of the mother circulates in the placenta.

The placenta presents to the naked eye—1. A circular sinus, or, in default of this, orifices like lattice-work; 2. Vascular orifices situated on the surface, or at the periphery; 3. Peripheric or central lacunar sinuses. Under the microscope, it shows an epithelium in the circular sinus.

M. Delore concludes that the placenta is situated on the passage of the uterine sinuses, and that it is,

therefore, nothing but a venous sinus penetrated by villousities. He is supported in his views by the following observations and proofs.

1. An injection made by the circular sinus penetrates the whole of the placenta, and the same thing takes place if an injection be made by the umbilical vessels.

2. The placenta of the still-born infant, of which the blood has lost the colouring matter, shows recent clots in its interior.

3. All the collected sections of the placenta show villousities in contact with blood-corpuses.

4. The presence of the vascular epithelium in the placental sinuses is a further proof that blood passes through them.

SURGERY.

STEUDENER ON CASES OF WOUND OF THE HEART.—Amongst severe injuries of the thorax occasioned in war-time, by stabbing or gunshot wounds, those of the heart are relatively rare; they are more frequently observed after duels, murders, or suicides. Non-penetrating wounds of the heart are especially rare, so much so as scarcely to receive mention in the recent surgical handbooks; on this account, the history of the following case by Dr. Steudener, of Halle (*Berliner Klinische Wochenschrift*, February 16) possesses some surgical interest.

E.K., twenty-three years old, had previously always enjoyed good health. On March 13, 1872, he shot himself under the left nipple with a revolver; he was found immediately afterwards lying on the ground, perfectly conscious, but unable to move the lower extremities. A wound with contused, scorched, and blackened edges, which did not bleed, was observed just below the nipple. There was complete motor and sensory paralysis of both lower extremities. The patient was perfectly conscious, and did not suffer much pain. Shortly afterwards a small quantity of clear blood was coughed out of the wound. On examining the chest, the left side was nowhere dull, but appeared somewhat tympanitic. The area of cardiac dulness was normal in extent and in position; a slight friction-sound could be heard over the heart; the vesicular breathing was very weak on the left side; on the right there was nothing abnormal. The wound was simply bound up, and ice applied. The following day there were marked pericarditic friction-sound and strongly marked symptoms of pneumothorax; tympanitic resonance over the whole of the left side of the chest, displacement of the heart to the right of the middle line, great dyspnoea, and a very weak small pulse. In the neighbourhood of the wound, the skin was raised by bullæ. The paralysis of the lower extremities was still complete. From the umbilicus downward there was no trace of sensibility; the bladder and rectum were paralysed; the urine was drawn off with the catheter. During the next three days the severity of the pulmonary and cardiac symptoms somewhat increased, and then they gradually diminished, and after three weeks had completely disappeared. A physical examination gave no evidence of either pericardial or pleural exudation having taken place, at least to any considerable extent. The wound in the thorax closed, but no change occurred in the paralysis; incontinence of urine after a time set in, and a bed-sore

formed over the sacrum. It is worthy of remark that, whilst the portions of the body not paralysed became emaciated, no such change took place in the paralysed parts. The bed-sore gradually increased in size, and the patient died, completely exhausted, fifteen weeks after the injury. At the *post mortem* examination, the muscles of the upper half of the body were found thin and pale, those of the lower were the subject of fatty degeneration. On opening the thorax both lungs collapsed equally, there was no trace of effusion in the pleural cavities, and, with the exception of a slight pleural adhesion of the left lung, nothing whatever abnormal was found in either. The heart was somewhat hypertrophied, and adherent throughout to the pericardium. On the outer surface of the left ventricle, near the apex, was an oblique cicatrix, which could be made to protrude considerably on injecting the heart with water; this corresponded to a hole in the pericardium, in the edges of which, as well as in the substance of the heart itself, were imbedded numerous spicules of powder. The muscular tissue of the heart, and its valves, were otherwise completely normal. Between the attachments of the tenth and eleventh ribs to the spine, some particles of powder were observed in the parietal pleura. In the abdomen, there was much fatty tissue in the omentum. The liver was enlarged and fatty; as were also the kidneys. The renal pelves and ureters were dilated, and the bladder was strongly contracted. The thoracic and lumbar part of the spine was removed and carefully opened. The ball had entered the intervertebral foramen between the tenth and eleventh thoracic vertebrae, and after completely dividing the spinal marrow, had then lodged in the body of the vertebra, projecting partly into the spinal canal. Some new bone had been formed in its neighbourhood. The divided portions of the cord were connected by a thin streak of cicatricial tissue; the lower portion was softer than the upper, and the grey matter was difficult to distinguish in it. The ball had thus probably passed through the anterior edge of the left lung, traversing the pericardium, and grazing the apex of the heart during the period of systole; it afterwards penetrated and lodged in the spinal canal.

The quick and favourable healing of a penetrating chest-wound without a trace of suppuration in either the pericardial or the pleural cavities, and in spite of well marked pneumothorax, is remarkable. It is also remarkable how little interference was produced in the heart's action by the occurrence of the injury; it is not unlikely that, had the patient survived, the thinning of the ventricular wall might have led to the creation of an aneurism of the heart; a slight degree of protrusion could indeed be observed at the necropsy. The visible emaciation of the non-paralysed portions of the body as compared to the paralysed, where there even seemed to be increased fat formation, was very unusual. 'I had,' the author states, 'previously examined many cases of fracture of the spine with complete paraplegia, and in this particular found all parts of the body equally affected.'

WILLIAM MAC CORMAC.

HICQUET ON WOUND OF THE HEART.—Dr. Hicquet, in the *Presse Médicale Belge*, no. 11, 1874, relates a remarkable case of perforation of the heart by a ball without injury to the pericardium.

A young man aged twenty-four was found dead with a gunshot wound in the front of the chest. At the *post mortem* examination a contused circular wound,

with blackened inverted edges, was observed in the fourth intercostal space close to the right of the sternum. Between the chest-wall and the surface of the pericardium, a cylindrical ball was found, surrounded by infiltrated cellular tissue. The pericardium was distended with blood, partly fluid, partly coagulated. Penetrating the right ventricle was found a circular wound with depressed slightly contused edges, somewhat less in diameter than the ball. The heart was strongly contracted and its tissue healthy. The lungs were congested.

Of the condition of the parts there appeared to be no doubt. The pericardium was uninjured, while the ball caused a wound of the ventricle.

W. MAC CORMAC.

NUSSBAUM ON A NEW METHOD OF CURING ULCERS.—Dr. Nussbaum, of Munich (*Ärztliches Intelligenzblatt*, no. 14), believes he has discovered a successful mode of dealing with large indolent ulcers. He has treated sixty cases of extensive ulcer of the leg in the following manner with the best results. The patient, having been first anæsthetised, an incision is made completely around the sore from half to three-quarters of an inch from its margin, dividing the skin and superficial structures down to the muscular aponeurosis. Very free hæmorrhage results from the wound, and it is necessary to fill the incision throughout its length with lint or charpie, and to apply firm compression; the charpie also acts in preventing immediate union of the incision. On the second day, the interposed lint is removed, and water-dressing is employed until cicatrization is completed. The author states that a surprising change is observed in the ulcer after the first twenty-four hours. The secretion alters from thin foul-smelling pus, very abundant in quantity, into normal inodorous pus, and the quantity becomes but small; the former ulcer diminishes rapidly in size, and cicatrization, proceeding from the margin towards the centre, soon becomes complete. The diminution in the amount of the secretion, and the other favourable changes that take place, are explained by the fact that the incision divides a large number of engorged vessels, and that the nutritive elements, which were before carried away in the copious secretion, have now time for cell-proliferation and transformation into connective tissue. The author believes that by means of this treatment a more rapid cure is obtained, and that the cicatrix is more elastic and resistant, than after the use of ordinary methods. The plan advocated by the author resembles the method often employed with advantage in indolent ulcers with raised callous edges, of making a number of radiating incisions through them.

WILLIAM MAC CORMAC.

HUTCHINSON ON REMOVAL OF THE UPPER JAW WITHOUT EXTERNAL INCISION.—Dr. Hutchinson reports (*American Journal of Medical Science*, January, 1874) what, so far as he has been able to ascertain, he believes to be the only case which the annals of surgery furnish, in which the entire right upper jaw and malar bones have been removed without external incision. The necrosed bones, their death being due to the fumes of phosphorus, were detached in the following manner.

The cheek was well retracted by a cheek-holder, and an incision was made from the right central incisor along the centre of the alveolar ridge to its posterior margin. The periosteum was separated by a perios-

teome from the anterior surface of the upper jaw, around to its junction with the pterygoid process of the sphenoid bone and upward to the malar bone, which also was found to be dead. This was likewise denuded of periosteum, as was also the floor of the orbit. An incision was then made down to the bone along the transverse palate suture outward to the alveolar process, and another forward along the middle palate suture. The periosteum was now separated from the palatine process of the superior maxilla. The speno-maxillary fissure was perforated, and the broadest part of the malar bone divided directly opposite to the perforation, by a single cut with Isaac's right-angled forceps. The nasal process of the superior maxilla was divided by the same instrument, in an oblique direction from the lower termination of the os nasi to the edge of the orbit, leaving the os unguis and the superior extremity of the nasal process of the superior maxilla undisturbed, in order to preserve the lachrymal sac from injury. One blade of the right-angled forceps was then introduced into the right nostril, and the other into the mouth, and the palatine processes of the superior maxilla were separated as far back as the palate bone by a single cut; and the disunion of the bones concerned was finally accomplished by separating the upper maxillary from the pterygoid process of the sphenoid bone. The jaw was now grasped with a duck-bill forceps, and with a slight twist the whole of the bone (except the upper end of the nasal process), including the orbital plate, was readily removed. The malar bone was seized with the forceps and removed in fragments. The periosteum covering the bones was left intact. The palate bones were uninjured, so that the whole of the soft palate was preserved, supported by the palatine plate of the os palati. The hemorrhage attending the operation was considerable, but was easily arrested by stuffing the wound with charpie wet with a solution of carbolic acid (1 part to 120 of water). The patient, a girl aged eighteen, recovered without an unfavourable symptom.

G. W. CALLENDER.

HUTCHINSON ON OSTEOMYELITIS OF THE ULNA. Dr. Hutchinson also mentions (*ibid.*) a case of osteomyelitis of the ulna, terminating rapidly in complete death of the bone. The lower end of the shaft was found, when removed, to be diminished in size, a condition which, it is observed, could only be produced by the action of some acid upon the osseous tissue, probably the lactic acid, which is known to be generated by decomposing muscular tissue and pus. The entire ulna was in this instance excised.

G. W. CALLENDER.

BOURGUET ON PSEUDARTHROSIS OF THE FEMUR CURED BY IRRITANT INJECTIONS.—M. Bourguet d'Aix communicates to the Société de Chirurgie (*L'Union Médicale*, Feb. 10) under this title the account of a case similar to one which he reported in 1863. A man broke the neck of his thigh-bone on Oct. 28, 1872; on April 1, 1873, it was still unconnected. M. Bourguet then injected at the level of the superior fragment ten minims of a solution of ammonia (one part in three). On April 27 he injected twenty minims at the level of the superior fragment; on April 30 he injected twenty drops between the two fragments; on May 8 he injected twenty drops of a solution of equal parts of ammonia and water. The limb was fixed on a splint. On May 10, he injected twenty drops of an iodised solution; and repeated it on June 2,

4, and 14, when a silicated bandage was applied to the leg, thigh, and pelvis. Phosphate of iron was given internally. On September 1 the patient was able to walk; on September 17 the fragments were solidly united, the callus was voluminous, there was shortening to the extent of $2\frac{1}{2}$ centimètres; another bandage was applied, leaving the knee and ankle free. On November 27, the cure was complete.

DESPRÈS ON AMPUTATION IN THE CONTINUITY OF THE FIRST AND FIFTH METATARSAL BONES.—Dr. Desprès, Surgeon to the Hôpital Cochin, points out (*Bulletin de Thérapeutique*, Jan. 30, 1874) that, for lesions of the metatarso-phalangeal joints, disarticulation of the phalanx is not sufficient, and that most surgeons are of opinion that the head of the metatarsal bone should be removed at the same time; when the whole metatarsal bone is removed, the tarso-metatarsal joints are opened, which is a disadvantage. The many operative proceedings recommended have for their object to remove the cicatrix from the influence of subsequent pressure, or at least to avoid a plantar cicatrix. Notwithstanding the precautions taken, the cicatrix is found sometimes on the side of the foot where it is exposed to pressure, or adherent to the end of the bone, where it is sure to be painful. The author adopts a method which he has seen Richard employ, and calls it a racquet-shaped incision with external flap. He adopted it in four cases recently with good results. An incision is made commencing near the prominence corresponding to the posterior extremity of the metatarsal bone, easily recognised by a distinct elevation under the skin; the cut is made to pass obliquely upon the dorsum of the foot until it comes to the base of the toe by an almost semicircular incision, with the convexity turned to the middle line of the foot; the incision is then continued around the base of the toe and so as to return to the first incision. The flap thus formed is dissected from the bone; that done, the metatarsal bone is encircled by an incision with the bistoury, in order to separate the soft parts. Regard being had to the age of the patient and the resistance of the bone, either Liston's forceps or a handsaw is used; in the latter case, a retractor must be employed to protect the soft parts.

The operation is stated to be easy, and the end of the divided bone does not approach the cicatrix. An account of four cases is then given, the subject being in each case able to walk afterwards in an ordinary shoe without any difficulty. W. MAC CORMAC.

MINER ON AMPUTATION AT THE SHOULDER-JOINT.—Dr. J. F. Miner, in the *Buffalo Medical and Surgical Journal*, says:

'The rule in surgery, which seems to be fully established, that the nearer the body the greater the risk in amputations, suggests the propriety in hip and shoulder-joint operations of considering carefully any measures of procedure calculated to diminish this risk. Professor McGraw, of Detroit, suggested the capital idea in hip-joint amputations of removing the bone from the acetabulum, when practicable, and dividing the soft parts at a greater distance from the body, thus avoiding the division of so great amount of tissue, and really removing the amputation to the junction of the upper and middle third, or even lower than this in some cases. I had practised upon this idea in injuries of the shoulder-joint, but had not considered the importance of the principles involved until reading his paper, when the value of the suggestion was better appreciated.

'In injuries of the bone and soft parts about the shoulder, it is not very unusual to be able to remove the shattered bone from the joint, and divide lower down upon the arm the lacerated soft parts of the arm, which in the usual method of amputation at the shoulder-joint were wholly sacrificed. These boneless stumps are of no great value in the motions or adjustments of artificial arms, but they are not altogether useless; they maintain the contour of the shoulder, and, above all, it is believed that oftentimes the risks attending the operative procedure are greatly lessened, and the operation, in controlling hæmorrhage and tying the vessels, much simplified. The results of some recent cases have impressed me with the conviction that, when the system is greatly reduced by loss of blood or from effects of long-continued disease, the value of this procedure cannot be over-estimated.

'A patient entered the General Hospital, at my request, for the purpose of exsection of a part or the whole of the humerus, as found necessary. Being bloodless and suffering from profuse purulent discharge, it was hoped that increase of strength and flesh might be obtained by a few weeks delay of the operation. Disappointed in this, it was soon apparent that he must lose his arm or life, or probably both, the disorganisation of the arm being complete, having become a suppurating mass from within five or six inches of the joint throughout. The idea of making the usual operation of amputation at the shoulder-joint was scarcely feasible, as our patient was hardly alive, and could not be expected to bear much operative interference. The diseased bone was divided near the middle with a chain-saw, and the upper fragment carefully detached from the soft parts and glenoid cavity and removed. The vessels were now easily controllable by grasping through the soft parts, and at a distance of about five inches from the joint the soft parts were divided, the vessels tied and parts approximated and retained by adhesive plaster, and warm-water dressings applied. To the surprise of us all, the patient did not seem to suffer from the operation, no blood was lost, and but little living tissue was divided. He made a good recovery, gained rapidly in flesh and strength, and left the hospital in three months fully recovered.

'The second case of this character was from railroad injury. The attempt to save the arm having failed, Dr. Green, of Buffalo, invited me to amputate at the shoulder-joint. Mortification had left a line of demarcation four or five inches from the joint. The bone was shattered, and now partially separated from the soft parts. With but little hope of saving the life of this patient, we yet removed the bone to the joint, divided what of tissue remained alive at about five inches distant from the body, laid the parts gently together, retaining them with plaster, and applying warm-water dressings. This patient recovered without an unpleasant symptom after the operation, from a condition of depression and bloodlessness, which, according to my observation, is generally fatal.

'My third case is a recent one, and more strongly impressed me with the advantages of removing the bone first, and then dividing the soft parts at as great distance from the body as circumstances will permit. A young man had an arm lacerated and completely destroyed by railroad accident. The soft parts were torn to within about four inches of the body, the bone broken to near the joint, the fragments loose and pointing into the flesh in all directions. The

patient, suffering from shock and loss of blood, was so nearly pulseless that it seemed scarcely proper to make any interference; but after delaying for the effects of stimulants a little, the head of the bone was carefully disarticulated from the glenoid cavity and the brachial artery ligated. After this, the remaining soft parts were divided at a distance of about four inches from the body, and the parts loosely approximated with a suture or two and adhesive strips. The patient rallied, and gradually recovered. This process consists in simplifying the operation as much as possible, and in this I believe consists the advantage of the procedure.'

APPLIED PHARMACY.

VACHELL, SMITH AND OTHERS ON SOLUTIONS OF MORPHIA FOR HYPODERMIC INJECTION.—MR. C. T. Vachell suggests (*Lancet*, Nov. 29, p. 797) the desirability of fixing a standard strength for the solutions of morphia used for subcutaneous injection. To obtain a clear solution, without excess of acid, is not very speedily effected; and he thinks it would be a convenience to the practitioner to be able to purchase a carefully prepared solution of standard strength. Mr. Vachell proposes the following formula.

| | | |
|---------------------|---------|---------------------------|
| Acetate of morphia. | | 1 drachm. |
| Distilled water | | 12 drachms. |
| Acetic acid | | As much as is sufficient. |

He states that one-twelfth of a grain of acetate of morphia would be contained in a minim of such a solution; the dose would, therefore, be from two to four minims. Some such formula, he thinks, might be inserted in the next edition of the *British Pharmacopæia*.

Dr. White has since pointed out (*Lancet*, Dec. 20) that no allowance is made in the foregoing for the increase of bulk by the addition of the solid, and that a minim would contain not one-twelfth, but one-thirteenth. He says that he makes his solution as follows:—

| | | |
|--------------------|---------|------------|
| Acetate of morphia | | 1 scruple |
| Distilled water | | 140 minims |
| Acetic acid; B. P. | | 5 minims |

Dissolve with gentle heat in a test tube. The solution measures exactly 160 minims, consequently 8 minims would contain one grain of acetate of morphia. As a standard solution he suggests one-half the strength of the above. The hydrochlorate is used by Mr. White (*Lancet*, Jan. 3) in the proportion of two grains to one drachm of hot water. This he has found to form a solution that does not deposit on cooling, and which he thinks preferable to solutions made up with free acids. In the discussion that has taken place the *British Pharmacopæia* solution of the acetate has also been recommended and objected to because of its bulkiness, and suggestions have been made for the use of a standard syringe as well as a standard solution.

Messrs. T. and H. Smith (*Pharm. Journ.* vol. iv. p. 436) state that, by using meconic acid instead of acetic acid, a neutral and stable solution of one in twelve, or much stronger, may be prepared. They consider that a neutral solution of meconate of morphia is pre-eminently adapted for hypodermic treatment.

GERRARD AND ABRAHAM ON PHOSPHORETTED RESIN.—MR. A. W. Gerrard stated at a meeting of the Pharmaceutical Society (*Pharm. Journ.* vol. iv. p. 441) that he had found resin would dissolve readily at least 4 per cent. of phosphorus, and he described the preparation of a phosphoretted resin for use in pharmacy. A strong wide-mouthed, well-stoppered bottle is weighed and filled with melted resin, again weighed, and four parts of phosphorus added for every 96 parts of resin. The phosphorus should, if possible, be added in one piece, and care should be taken that the resin is in a fluid state, so that the phosphorus may readily sink below the surface, or else it will take fire. The stopper being tightly fixed, the bottle is placed in a previously warmed sand-bath, and digested at 200° C. (392° Fahr.), with frequent shaking until the phosphorus is dissolved. If the temperature exceed 210° C. (410° Fahr.), the resin boils, and the heat is liable to change the phosphorus to the red amorphous state. To prevent accidents or the volatilisation of the phosphorus in the upper portion of the bottle, a bottleful of the resin should be made at each operation. The resin is most easily removed by drawing it from the bottle while still soft and only partly cooled, under hot water.

The formula suggested by Mr. Gerrard for the administration of this phosphoretted resin is as follows.

| | |
|---|------------|
| Take of Phosphoretted resin (4 per cent.) | 25 grains. |
| Powdered white sugar | 75 grains. |
| Tincture of tolu | q. s. |

Pulverise the resin, mix with the sugar, and form into a mass with tincture of tolu (eight or ten drops are sufficient). Divide into twenty pills. Each pill will contain one-twentieth of a grain of phosphorus.

The pill-mass formed is of excellent consistence, and the pills made from it retain their form and present an elegant appearance without the addition of any coating; they have but a faint odour of phosphorus, which may be completely removed by the addition of oil of peppermint, and they are readily soluble. Mr. Gerrard adds that experience gained in the University College Hospital shows that these pills are fully equal in therapeutic value to any form previously used.

The kind of resin to be used in this preparation is the black translucent variety known as rosin, not the pale yellowish variety usually met with in druggists' shops, unless it has been deprived of a varying amount of water (sometimes 10 per cent.) which it contains.

In commenting upon the above preparation (*Pharm. Journ.* [3] iv. 549) Mr. A. C. Abraham, of Liverpool, alludes to the inconvenience and danger attending the application of strong heat to phosphorus. He therefore proposes to substitute for the resin a substance that is fusible below the boiling-point of water, and also sufficiently heavy to sink in that liquid. Balsam of tolu he has found to answer both these requirements, and experiment has shown that 4 grains of phosphorus are perfectly dissolved by 96 grains of washed tolu, if melted together under water and well stirred. The preparation so made, he reports, when examined microscopically, does not show any particles of undissolved phosphorus, and when rubbed between the fingers in the dark is seen to give off a perfectly equally distributed light.

LUND ON CARBOLISED RESIN-CLOTH.—As an antiseptic dressing, Mr. Lund recommends the use of a carbolised resin-cloth in the place of the ordinary

cerecloth, the effect of the addition of resin being to neutralise the acrid properties of the carbolic acid, which still evolves an antiseptic vapour at the temperature of the body. He uses a very thin calico gauze, and the solution for its saturation is prepared as follows (*British Medical Journal*, Dec. 6, p. 654).

| | |
|---------------------------------------|------------------|
| Carbolic acid crystals (melted) . . . | 2 fluid ounces. |
| Castor oil | 2 fluid ounces. |
| Purified resin | 16 ounces. |
| Methylated spirit | 40 fluid ounces. |

To the resin liquefied by heat and removed from the fire is added one-third of the spirit; when these are well-mixed, another third of the spirit in which the oil has been previously dissolved is poured in; and lastly the acid dissolved in the remainder of the spirit is slowly added. The whole must be agitated until all the ingredients are thoroughly incorporated and afterwards passed through a muslin filter to get rid of extraneous matters. If this plan be not adopted, the resin will concrete into a mass at the bottom of the vessel, and it will be extremely difficult afterwards to get it perfectly mixed. Thus prepared, the solution is of a dark colour, clear, and free from any deposit, and can be kept unchanged for a long time in a well-corked bottle. The castor-oil is added that the cloth may retain its flexibility after the evaporation of the spirit.

To prepare the resin cloth a very cheap, thin, porous calico, or calico-muslin, is selected, known in the trade as 'mulls'; it should be unbleached, and free from dressing. This is divided into strips of about nine inches wide, and six yards long. The strips are carefully folded so as to lie flatly in a tin box, made so as to receive the plates of a tincture press, or an ordinary copying press, and having an aperture at the bottom of the box, with a tap so that the superfluous fluid can be removed and reused. The solution is poured over every layer of cloth successively, so as to wet every portion of it; next the pressure is applied, and the calico squeezed as dry as possible, then taken out and hung for a few hours in a well-ventilated, warm room, till all traces of smell of methylated spirit have departed. The cloth may afterwards be rolled up and kept in tin cases ready for use. It appears to be necessary to dry it thoroughly, as the presence of any traces of the methylated spirit is apt to cause irritation.

BOND ON EXTRACTUM AURANTII CORTICIS FLUIDUM.—A fluid extract of sweet orange-rind is extensively used in the United States, in the preparation of numerous elixirs and tonics. As no official formula exists for it, Mr. Monroe Bond has made numerous experiments to ascertain the most suitable menstruum, and recommends the adoption of the following formula (*Amer. Journ. Pharm.* vol. xlv. p. 482).

| | |
|--|--------------|
| Sweet orange-peel, in moderately fine powder | 3xvj. |
| Glycerine | fl. oz. iij. |
| Alcohol | |
| Water, each a sufficient quantity. | |

Mix fourteen fluid-ounces of alcohol with two fluid-ounces of glycerine; moisten the orange-peel thoroughly with twelve fluid-ounces of the above mixture cover carefully, and let it stand for twelve hours; then pack moderately firm in a percolator, and proceed as directed in the *United States Pharmacopœia* for the preparation of fluid extracts. Finish the percolation with a mixture of two parts of alcohol and one of water; reserving the first fourteen ounces, add

one fluid-ounce of glycerine to the remainder, carefully evaporate to two fluid-ounces, and mix with the reserved portion.

The preparation is described as having a heavy rich appearance, being permanent, and possessing all the aroma of the orange-peel. One fluid-ounce added to fifteen fluid-ounces of simple syrup, makes what the author considers to be a stronger and better syrupus aurantii corticis than the official, and which is free from any opaqueness. Four fluid-drachms of the fluid extract and a few drops of solution of citric acid mixed with a pint of syrup, make a delicately flavoured unfermentable syrup for use at the mineral-water counter.

VAN GORKOM ON JAVA CINCHONA BARKS.—Van Gorkom has continued his examination of Java cinchona barks. He reports (*Pharm. Zeitung*, Oct. 4), that the several varieties of Cinchona officinalis contain different amounts of alkaloids, varying in ten specimens examined, from 1.75 to 5.92 per cent. of quinine (= 2.35 to 7.98 of sulphate), and that the smallest leaved varieties are richest in quinine. C. Calisaya bark also varies much; one specimen of the 'Ledger' variety (see LONDON MEDICAL RECORD, ante p. 540), containing as much as 9.09 per cent. of quinine (= 12.23 per cent. of sulphate). The plant yielding this kind is always characterised by very small white flowers and small fruit. C. caloptera is stated to yield a bark well suited for pharmaceutical purposes, as also does C. lancifolia. The yield from C. Pahudiana bark was very unsatisfactory. The opinion that C. officinalis should be grown at a considerable elevation above the sea-level, is supported by the results. The progress of the plants this year is stated to have been satisfactory, and as much as 7,000 kilos of bark have been prepared for delivery.

ELLINOR ON A NEW PREPARATION OF KINO.—In a paper read at the meeting of the British Pharmaceutical Conference (*Pharmaceutical Journal*, [3] iv. 336), the author recommends the preparation of a concentrated solution of kino, miscible in all proportions with water, which could be diluted as required, and the inconvenience, frequently resulting from the instability of the B. P. tincture thus avoided. The formula he proposes is as follows.

| | |
|---------------------|------|
| Kino | 3j. |
| Glycerine | 3ij. |
| Water to | 3iv. |

Rub together in a mortar the kino, glycerine and 3j. of the water, until dissolved, then make up to fl. 3iv. by the addition of water.

The whole of the kino is dissolved, the sand and other earthy matter being thrown down after standing a week or so. The author states that one volume of this concentrated preparation mixed with four volumes of water will form a solution corresponding in strength with, or stronger than, the tincture.

[The many instances in which, during the last few years, glycerine has been introduced with advantage into pharmaceutical preparations, and the impulse to fresh experiments in that direction which will be doubtless given by its official introduction into the fluid extracts of the United States Pharmacopœia, should not cause the fact to be lost sight of that its use will probably often cause a considerable modification both in the ingredients and power of a preparation. This is especially the case when used with astringents. Thus Mr. H. B. Brady mentions

(*Pharmaceutical Journal*, iv. 336), an instance in which three hundred grains of perchloride of iron dissolved in glycerine were swallowed by mistake without any ill effect, whilst a very much smaller quantity dissolved in water must have caused serious results. He has also known several instances in which medical men have been disappointed in obtaining the full astringent effect they expected from glycerinum acidi tanici, when a strong aqueous infusion has answered admirably. The effect of glycerine in covering the astringent metallic taste of perchloride of iron was pointed out recently by Dr. Snow in the *British Medical Journal*, June 28, p. 724, and in the same publication the following week (p. 11), Dr. Boggs added further that glycerine counteracts the astringent action of some drugs upon the bowels, and suggested that when that effect was not needed it might be substituted for syrup as a vehicle in preparations of iron, cinchona, rhatany, etc., which have a tendency to constipate.—*Rep.*]

PILE, MAISCH, AND OTHERS ON ADULTERATED OIL OF GAULTHERIA.—At a recent meeting of the Philadelphia College of Pharmacy (*Amer. Journ. of Pharm.*, vol. xlv. p. 521) Dr. Pile called attention to a sample of adulterated oil of gaultheria. The adulterating substance he had found to be chloroform, in the proportion of one part to four parts of the oil. The adulteration could be easily detected by taking the specific gravity and the boiling-point; the specific gravity of pure oil of gaultheria is 1.18, that of the adulterated was 1.24; the boiling-point of the true oil is 400° F., the adulterated boiled actively at 200° F. Mr. C. Bullock described an apparatus for separating the substances by fractional distillation, by means of which he had found that there was a large proportion of oil of sassafras also present. Professor Maisch said that the presence of oil of sassafras might be detected by treating the suspected oil in the cold with commercial nitric acid, the oil of sassafras separating as a deep red resinous mass, whilst the oil of gaultheria was unaffected.

BAILLON ON THE BOTANICAL ORIGIN OF THE BALSAMS OF TOLU AND PERU.—The balsam of tolu is obtained from a plant which has been described as *Myroxylon toluiferum*, but was originally named by Linnæus, in his *Materia Medica*, *Toluifera balsamum*. This latter name, therefore, Professor Baillon thinks it should retain (*Répertoire de Pharmacie*, i. 566). The tree yielding balsam of peru was first named by the younger Linnæus *Myroxylon peruiferum*, afterwards by Klotzsch *M. Pereiræ*; but Professor Baillon considers it can hardly be separated specifically from *Toluifera balsamum* (*M. toluiferum*). The different qualities and characters of the balsams seem to depend entirely upon the method of their extraction. But all the forms of tolu balsamum have one constant character in the smooth surface of the seeds, which arises from the fact that the seeds are not ruminated; whilst in *M. peruiferum*, which should take the name of *Toluifera peruifera*, they are ruminated. In the latter, as in the former, the balsamic substance is present on the surface of the seed, but is sunk into the crevices of the seminal envelope instead of being deposited in a smooth layer. This Professor Baillon finds to be the sole difference between the two species.

B. H. PAUL, Ph.D.

OPHTHALMOLOGY AND OTOTOLOGY.

KNAPP ON NEW INSTRUMENTS RELATING TO THE EYE.—Dr. Knapp, of New York, describes some new instruments in the *Transactions of the American Ophthalmological Society*.

The first instrument is an improved lid-forceps. It has rendered him and his colleagues at the New York Ophthalmic and Aural Institute good service in various operations on the lids. The modification, which renders the instrument applicable to both eyes, seems to answer perfectly well.

The second instrument is a hook for the extraction of foreign bodies from the interior of the eye. It is a small hook, grooved and roughened at its concave side, made of flexible silver, so that its curve may be changed according to the requirements of the case. He has used this instrument for years with good results. Those who have had opportunities to remove foreign bodies from within the eyeball, will know how unavailable forceps are for this purpose: the foreign body, in most cases receding before the instrument, is pushed more deeply into the interior structures of the globe. The best instruments to extract foreign bodies out of the eye, and, in fact, the only available ones, are hooks and curettes. Dr. Knapp has extracted successfully a number of foreign bodies from the anterior chamber, some from the lens, and a few from the vitreous chamber.

The third instrument is a new ophthalmoscope. A rotating disc behind the mirror, first employed by Mr. Rekoss, of Königsberg, and modified usefully by Dr. E. G. Loring, of New York, seems to be the best mechanical contrivance for using the ophthalmoscope as an optometer. Loring's three discs, however, cause considerable loss of time by changing from one to the other; and Cohn's modification, which puts all the glasses of Loring's three discs into one large disc of 3 inches in diameter, appears clumsy and unmanageable. Apart from these inconveniences, the discs in Loring's ophthalmoscope have not a sufficient number of glasses for the requirements of a careful ophthalmic practitioner. Some years before Dr. Loring constructed his instrument, Dr. Knapp had a complete collection of small trial-glasses made, which he could insert into an ordinary small (Liebreich) ophthalmoscope; and Dr. H. D. Noyes had his ophthalmoscope so changed that he could place behind the mirror all the numbers of his trial case of spectacles. All this, however, requires too much time for constant use. Dr. Knapp's ophthalmoscope affords the greatest possible number of trial-glasses behind the eye, permits them to be rapidly changed, while the instrument is nearly as small as Loring's. It consists of the ordinary mirror, behind which two discs can be rotated like the diaphragm in some—for instance, Kellner's—microscopes. In each disc are thirteen little apertures, twelve of which are filled with glasses, one being empty. One disc contains convex, the other concave glasses, in the following progression: 3, 4, 6, 8, 10, 12, 14, 17, 20, 24, 33, 48.* The intervals of refractive power between these numbers are as follows: between 3 and 4 = $\frac{1}{12}$; 4 and 6 = $\frac{1}{12}$; 6 and 8 = $\frac{1}{24}$; 8 and 10 = $\frac{1}{40}$; 10 and 12 = $\frac{1}{60}$; 12 and 14 = $\frac{1}{84}$; 14 and 17 = $\frac{1}{78}$; 17 and 20 = $\frac{1}{112}$; 20 and 24 = $\frac{1}{120}$; 24 and 33 = $\frac{1}{38}$; 33 and 48 = $\frac{1}{106}$. The weaker

* In the new instruments + 2 and - 2 are added.

numbers, which occur more frequently in practice, show very small intervals of refraction. These two series of glasses are sufficient for the majority of cases coming before the practitioner. To avoid, however, any loss of time, both discs are placed behind the mirror, and the change from one glass to any other is effected by a very easy rotation of the disc. The discs are held in place and protected from being soiled by a thin metal plate, which covers the glasses from behind, whilst in front the discs are applied to the body of the instrument. The cover has three holes; the middle one corresponds to the perforation of the mirror; through the two others, placed respectively above and below the central one, the numbers of the glasses can be read. The cover can be removed if the glasses require cleansing. The vertical diameter of the ophthalmoscope, the handle, of course, not included, is 60 millimètres, not quite $2\frac{1}{2}$ inches; its horizontal diameter is 35 millimètres, not quite $1\frac{1}{2}$ inches.

The edges of the two discs overlap each other at the place of the perforation of the mirror, so that each glass of one disc can be superposed by each glass of the other disc, thus giving combinations of glasses which will satisfy all practical and scientific demands. It is easy to make intermediate numbers between the higher numbers of the discs. If it be desired to know the distance between two parts of the fundus oculi, for instance, the centre and the margin of the optic disc, the position of one part is determined by one disc, and so much refractive power is added or taken away by the other disc as is required to see the second part clearly. For instance, if the centre of an excavated papilla appear clear with -8 , the disc of the concave glasses is left with -8 behind the aperture in the mirror; the disc of the convex glasses is rotated, and it is found that convex 24 renders the margin of the papilla clear. Then the refractive difference between the margin and the centre of the disc is $\frac{24}{4}$, which indicates an excavation of 0.4 millimètres in depth.

GAYAT ON MEASUREMENT OF THE ORBIT.—The dimensions of the orbit as given by Arlt, Richet, Zander, and Wecker, differ from each other, owing to the various points from which they have been taken. In his paper (*Annales d'Oculistique*, July and August, 1873) Dr. Gayat records the results of his measurements made upon skulls at various ages, and of individuals of different nations. In shape, the orbit may be described as a quadrangular pyramid, though there is considerable disagreement as to the position of its apex. According to some authors, this is made to correspond with the optic foramen, and lines prolonged through the apex of each orbit would meet at the sella Turcica; according to others, it corresponds with the widest portion of the sphenoidal fissure, and a line prolonged through it would meet a similar line drawn through the fellow orbit at the internal occipital protuberance. Other points have been fixed upon, as the speno-maxillary fissure, and the narrowest part of the sphenoidal fissure, all of which must vary in size at different ages; and this being so, it will be readily seen how difficult it is to place reliance upon such measurements.

Again, with regard to the base of the pyramid, the points generally chosen are the angles of the orbital aperture and the margins of bone which enter into the formation of these angles, any of which may vary in their thickness and curvature.

According to Dr. Gayat, the most reliable point to

be chosen as the apex is the bony plate which forms the outer margin of the optic foramen; this is intermediate to the two points through which Cruvelhier and Sappey would make the axis to pass. By means of an instrument of his own, Dr. Gayat measures from this to various other points chosen from the margins of the orbit, such as the spine or tubercle which marks the groove for the tendon of the superior oblique; the suture which unites the external angular process of the frontal with the malar bone; the suture between the malar and the superior maxillary bones; lastly, the crest of the superior maxillary which forms the anterior lip of the lachrymal canal. Even these points are not constant in their position or size, so that it is evident how unsatisfactory ordinary measurements of the capacity of the orbit must be.

Though it varies in individuals of different races of men, the orbital aperture may be described as an ellipse inclined downwards and outwards. The Tasmanians have a very small orbital aperture, and its greatest diameter is horizontal.

Dr. Gayat calls his instrument an orbitometer, and has made measurements of a large number of skulls in the museums at Vienna and Paris; he finds that measurements of one orbit are sufficient, as the two cavities are usually exactly of a size. The paper contains valuable tables of measurements of a large number of normal skulls, as well as of others which were unsymmetrical and unusual, and concludes with the author's belief that the subject has a value and importance to anthropologists, and to surgeons other than those who are specially interested in the study of ophthalmology.

B. J. VERNON.

DOBROWOLSKI ON SMOKED GLASSES.—Dr. Dobrowolski, of St. Petersburg, writes (*Annales d'Oculistique*, September and October, 1873) to point out the objections which apply to the use of blue glasses, and the superiority of grey or smoked glasses. He argues that blue glasses will not diminish equally the amount of coloured rays which reach the retina, inasmuch as they transmit a large number of the red rays in addition to all the blue and violet; while it is essential that, in attempting to shield the eyes from too bright a light, the surgeon should employ some glass which will diminish in equal proportion all the rays which constitute ordinary sunlight. He argues entirely on the assumption that there are distinct sets of nerves in the retina which are especially sensitive to certain rays of light, and asserts that these glasses protect most completely the nerves sensitive to yellow rays, a very little those nerves which are sensitive to red rays, and not at all those which perceive the blue or violet rays. Another objection which he makes is that, after wearing blue spectacles, the eye has great difficulty sometimes in accommodating itself again to ordinary sunlight.

On the other hand, Dobrowolski has great reason for believing that smoked glasses do not entail any of these inconveniences, because they diminish the passage of all rays equally, and do not render the eye that has been wearing them unable to adapt itself to ordinary bright light.

B. J. VERNON.

HALTENHOFF ON RETINAL HÆMORRHAGE IN CASES OF DIABETES.—Dr. Haltenhoff, of Geneva (*Annales d'Oculistique*, July and August, 1873), lays stress upon the fact that more attention has been paid to the occurrence of cataract than of other affections of the eyes in these cases.

In addition to cataract there are several causes of impairment of vision, viz. :—

1. A weakness or paralysis of the accommodation ;
2. Amblyopia, slight in degree and generally transient, without any apparent intraocular lesion—in all probability due to a failure in the function of the retina through the impoverishment and general decay of the system ;

3. Amblyopia, decided in amount and incurable ; if the the patient be long-lived, terminating in progressive atrophy of the retina and optic nerves. A case of hemiopia, narrated by Von Gräfe, is considered by him due to some affection of the optic tracts, and in the cases of amaurosis with white atrophy Von Gräfe is well disposed to admit a cerebral cause.

4. Amblyopia, due to inflammation and to hæmorrhages within the retina, such as are met with in Bright's disease.

Authors of note admit the existence of such lesions, although in some at least of their cases there was albuminuria present.

Dr. Haltenhoff records a case of a woman aged twenty-nine, who was the subject of retinal hæmorrhage and peripheral retinitis, without any patches or streaks of effusion, and without albuminuria. The yellow spot was not involved, and her vision = $\frac{16}{70}$. The choroid and crystalline lens were both healthy, but the amount of sugar in the urine as shown by the polarimeter was very great. Under treatment, the patient improved so as to be able to read no. 2, Jäger, and her vision for distance improved to = $\frac{16}{20}$.

Dr. Haltenhoff asks whether there was any direct relation between the diabetes and the retinitis, or was their occurrence merely a coincidence ? If so, when the action and functions of the brain, the heart, and the kidneys were normal, wherein are we to seek the cause ? There was none to be found in her work or mode of life ; and when we see how the retina may be involved in uræmia, anæmia, lead-poisoning, leucocythæmia, or poisoning by alcohol or tobacco, and when so many different organs and tissues are affected by sugar in the blood, why should not the retina be assumed to suffer in its turn ?

In one respect the parallel is imperfect, inasmuch as diabetes does not predispose to hæmorrhage ; even the phthisis which terminates many of the cases is not so marked by hæmoptysis. Dr. Haltenhoff explains the anomaly of the hæmorrhage in these cases, by supposing an alteration in the tension of the blood-vessels brought about by the altered relations of the fluids within them.

B. J. VERNON.

WECKER ON IRIDOTOMY.—M. Wecker (*Annales d'Oculistique*, September and October, 1873), speaks of Cheselden as having been the originator of iridotomy in 1728, or at all events of having carried into practice an idea of his master, Thomas Woolhouse. The operation was then forgotten till, in 1812, Manoir in vain attempted its adoption. That there are at least two descriptions of the exact method of proceeding of Cheselden ; the one by Morand, who had seen Cheselden operate, and the other by Sharp, a pupil of Cheselden. The two descriptions do not quite agree in detail ; but it would seem that the operation consisted in piercing the sclerotic and the posterior chamber with a narrow knife, the point of which was pressed against the iris, and made to divide it as it was withdrawn. The extreme danger to the crystalline lens in this operation was obvious, and in 1756 Heurmann modified the operation by

performing it through the anterior chamber with a lance-shaped knife, the same instrument being used for the section of the iris as of the cornea—a proceeding little less dangerous.

Then came the method proposed by Guérin, in which the section of the iris was subsequent to that of the cornea, and was made, too, with a separate instrument. Lastly, Janin, in 1772, describes his plan of operating with scissors ; and it is clear from his account how well aware he was of the many difficulties and dangers which, till his time, surrounded the operation. From that time till very recently it does not appear that the many surgeons who have made trial of it have in any way added to the popularity of the operation.

It was by Von Gräfe that iridotomy was restored to its proper place ; and he advised its performance in certain cases of occlusion of the pupil after cataract extraction. His method was based on the principles laid down by Cheselden and Heurmann. At the Congress in London in 1872, a paper by Mr. Bowmann was read, advocating such an operation in some cases of corneal opacities, of conical cornea, &c., in all of which the crystalline is *in situ*. This procedure is thus described by Mr. Soelberg Wells (*Treatise on Diseases of the Eye*, 3rd edition).

Through a small conical opening made by a broad needle opposite the intended pupil, he introduces a very small knife, stout at the end and back, as far as may be necessary through the pupil, between the iris and lens ; and then turning the edge forward, he incises the pupillary edge to the extent required, using the cornea as a background against which he cuts. In doing this, the posterior surface of the cornea may be slightly incised, but any temporary subula thence resulting soon disappear. The incision made in the iris gapes and forms the new pupil, which retains some mobility under varying light.

M. Wecker considers that there is serious risk of a permanent opacity if the membrane of Descemet be wounded, and in his own method of operating he recurs to the use of scissors after the suggestion of Janin.

M. Wecker recommends iridotomy in cases in which the lens is present, and in which the new pupil is made for optical reasons ; this he calls simple iridotomy ; as also in cases where, the lens being lost, it is necessary to cut a passage for the rays of light through inflammatory products situated in or behind the pupil ; this is called double iridotomy.

The instruments required are a small lance-shaped knife provided with a stop, and a pair of scissor-bladed forceps with carefully rounded ends.

He performs simple iridotomy in cases of central opacity of the cornea or of the lens, in the following manner.

The eye being fixed in the usual way, the section of the cornea is made parallel to the iris and as nearly opposite as possible to the desired new pupil. The scissors are then introduced closed into the anterior chamber, and, after being passed carefully across the pupil, are slightly opened, so as to permit one blade to pass between the edge of the pupil and the lens. With one stroke of the scissors the pupillary edge and the circular fibres are divided, and the scissors are then withdrawn.

M. Wecker says that the after-effects are very slight and the inconvenience to the patient very trivial, while the gain in vision is most satisfactory. He adds, however, that though very simple in the hands of the practised operator, the operation should never

be attempted by the inexperienced, and cannot therefore be generally adopted.

Double iridotomy is adopted for eyes which, in consequence of an accident, have been deprived of their lens, and where the pupil has become occluded by inflammatory products. In performing the operation the section is made with the same stop-knife which is pushed through the iris as well as the cornea; the knife is to be withdrawn with great care in order to avoid any escape of vitreous humour; the iris and the membranes behind it are then cut through with the scissors. In some cases a V-shaped section is advantageous.

M. Wecker considers that iridotomy has great advantages over iridectomy and iridesis in cases where a new pupil is required for optical reasons.

BOWATER J. VERNON.

RECENT PAPERS.

Examination of the Eyes in four Schools in Wiesbaden, and comparison of the results with the numbers obtained in other places. By Dr. H. von Hoffmann. (*Klinische Monatsblätter für Augenheilkunde*, October, 1873.)

A Short Report on the most recent Attempts at Perfection in the Removal of Cataract. By W. Zehender. (*Ibid.* Nov. 1873.)

Sarcomatous Ectropion of each Conjunctiva cured by Excision of the Conjunctiva. By Dr. J. Talko. (*Ibid.*)

Sarcoma of the Conjunctiva of the Upper Eyelid: Excision: Cure. By Dr. J. Talko. (*Ibid.*)

Epithelioma of the Conjunctiva of the Bulb; Excision: Recovery. By Dr. J. Talko. (*Ibid.*)

Telangiectasis of the Conjunctiva of the Bulb. By Dr. J. Talko. (*Ibid.*)

MISCELLANY.

A MALE NURSE.—The *Philadelphia Medical Times* says that the *Lepus Bairdii* is a peculiar species of rabbit which is found in the mountains near the Three Tetons of Wyoming and the heads of the Snake River and the Missouri. One of its peculiarities is the habit which the males have of suckling the young. Numerous specimens of this sex were obtained by the naturalists of Hayden's geological survey of 1872, with well-developed teats and mammary glands filled with milk.

ELEPHANTIASIS TREATED BY RATTLESNAKE POISON. The *Philadelphia Medical Times* translates from the Portuguese (Brazilian) *Diccionario de Medicina Popular*, an account of a man, the subject of elephantiasis affecting the whole body, who, in despair of cure by other means, allowed himself to be bitten by a rattlesnake. It is a vulgar belief in many of the States of South America, where erysipelas is very prevalent, that the bite of the rattlesnake produces a certain cure without any disastrous consequences to the patient. Symptoms of poisoning, however, set in soon after the bite, and death occurred after twenty-four hours of great distress.

PRIZES OF THE ACADEMY OF MEDICINE.—In addition to the Ourches prizes, the report on which is given at page 205, the Academy of Medicine in Paris has made the following awards for 1873. The only two prizes awarded in their entirety were the Academy Prize (1,000 francs), to Dr. Puel, of Figeac, for his essay on the History of Resection of Bones in their Continuity, after Gunshot Wounds; and the Amussat prize (1,000 francs), to M. Jacques Reverdin, of Geneva, for his researches on skin-grafting. The Godard prize of 1,000 francs was divided into two portions as 'recompences'; one of 700 francs to Dr. Poncet, for his essay on *mal perforant antonin* (Dr.

Poncet also received a portion of the Ourches prize); and one of 300 francs to Dr. Felizet for his Anatomical and Experimental Researches on Fractures of the Skull. There was no award of the Itard triennial prize (2,700 francs); but a recompence of 1,000 francs was awarded to Dr. Armieux for his Medical Studies of Barèges, and one of 500 francs to Dr. Deroubaix for a treatise on Genito-Urinary Fistulae in the Female. The Portal prize (1,000 francs), the Civrieux prize (900 francs), the Capuron prize (3,000 francs), and the Barbier prize (3,000 francs), remain in the hands of the Academy; there having been no competition for the former two, and no sufficiently good essay offered in competition for the others.

BONE SCRAPING IN THE SOUTH SEA ISLANDS.—A correspondent of the *Medical Times* writes that a notion prevails there that headache, neuralgia, vertigo, and other cerebral affections proceed from a crack in the head or pressure of the skull on the brain. The remedy is to lay open the scalp with a cross or T incision, then scrape the cranium carefully and gently with a piece of glass until a hole is made into the skull down to the dura mater, about the size of a crown-piece. Sometimes this scraping operation will be even to the pia mater by an unskilful surgeon, or from the impatience of the friends, and death is the consequence. In the best of hands about half of those who undergo the operation die from it; yet this barbarous custom, from superstition and fashion, has been so prevalent, that very few of the male adults are without this hole in the cranium, or 'have a shingle loose,' to use an Australian phrase. It is said that sometimes an attempt is made to cover the membranes of the cranium so exposed by placing a piece of cocoa-nut shell under the scalp. For this purpose they select a very hard and durable piece of shell, from which they scrape the softer parts and grind quite smooth, and put this as a plate between the scalp and skull. Formerly the trephine was simply a shark's tooth; now, a piece of broken glass is found more suitable, or less objectionable (if we may even so qualify the act). The part of the cranium generally selected is that where the coronal and sagittal sutures unite, or a little above it, upon the supposition that there the fracture exists. This bone-scraping remedy is likewise employed in cases of rheumatism in old people. The cuticle is incised longitudinally, and the centre of the ulna or tibia laid bare; then the surface of the bone is scraped with glass, until a large portion of the external lamina is removed.

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The London Medical Record.

WEDNESDAY, APRIL 15, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

THE SIGNS OF DEATH.*

(Concluded from page 207.)

It is known that the lowest limit of temperature in disease is 32° Cent. (89·6° Fahr.) ; below that, death is inevitable. It has, therefore, occurred spontaneously to the mind of some observers to seek for a positive proof of the termination of life in the cooling recorded by the thermometer. We ourselves, thirty years ago, had made some experiments destined to determine the *maxima* and *minima* of morbid temperature compatible with existence ; and we had recommended the application of thermometry to forensic medicine.

In the present competition two distinguished practitioners, MM. Durand and Linas, have severally written interesting works on this new point of science, and the commission has awarded 1,000 francs to each of them. The first of these gentlemen has repeated more than a thousand experiments on man and animals ; the second, who has made experiments in a great hospital in Paris, has studied the variations of temperature after death, not only in man at various ages, but also in new-born children. If only the laws of calorificity in disease were taken into consideration, it might be said that, with the exception of scleroderma, an affection only observed in foundling hospitals, the lowering of the temperature to 30° Cent. (86° Fahr.) is a positive announcement of death. But as in experiments on animals, and especially in freezing experiments, it has been possible to make the thermometer fall much lower, and as also, in an hitherto unique observation on a woman who was brought in to M. Michel Péter's ward, at La Pitié, dying of cold, that physician noted down a temperature of only 20° Cent. (68° Fahr.) and life was, notwithstanding, restored by artificial heat ; we should not really be authorised to declare death certain unless the thermometer had fallen still lower, and had fallen to the figures of 25°, 22°, or 20° Cent. (77°, 71·6°, or 68° Fahr.), the extreme limit beyond which frozen animals have not been able to be reanimated.

But if we ought to expect that the column of mercury would fall so low after death, the thermometer would be of slight assistance ; since eighteen to twenty-four hours are needed for the corpse to enter into equilibrium with the surrounding temperature, and since thus in summer, in very hot days, the temperature of the dead body remains the same as the atmospheric medium and cannot fall below 25° Cent. (77° Fahr.).

For these reasons, we think that a positive sign of death should less be sought in an absolute and deter-

minate cooling than in the gradual refrigeration which commences at the first moments of death and goes on increasing. The body loses about 2° Cent. of heat every hour, so that after three or four hours have passed the temperature has generally fallen to 32° (89·6° Fahr.) or even to 30° (86° Fahr.) ; at this point of morbid refrigeration the torch of life, after having emitted a fainter and fainter light, goes out for want of fuel.

It will be seen that the studies induced by the Ourches prize of 5,000 francs, which has been divided with justice (and the commission regrets not to have more rewards at its disposal), give a still greater certainty to the signs before indicated as announcements of death, and they add others which are of greater value.

Besides, it must be remarked that the question of the certainty of the signs of death is not an affair of theory but of practice. It does not concern the physician to discover a characteristic sign of the extinction of life, and may be an unequivocal sign according to which he decides ; an abstraction made from all the others, and from the mutual help they afford each other. Life has been defined as the assemblage of functions which resist death. What then can death be, except the end of the resistance in the whole of all the functions, an end which, to be affirmed with certainty, should be studied everywhere ; separately as well as in the organic whole ?

Practically, and as a matter of fact, what is this problem ? It is to distinguish a dead person from a living one. And besides, it is not at the moment when the final struggle is finished, a struggle which has often been retarded by the skill or the tenderness of the family, it is not at the end of a few hours only that the verifying physician is called on to pronounce his judgment ; it is after ten, fifteen, or more hours, since the law which protects us above all against criminally hastened inhumations prescribes a delay of twenty-four hours, which is frequently exceeded. It will be acknowledged that, after all these hours have passed away, verification is easy for the physician who ought at all times and everywhere to replace the civic official. He may with equal security to his conscience as to the uneasy anxiety of the relatives, confirm the inexorable decree by his signature. Yes ! modern science can assign to real death the indispensable stamp of the most absolute certainty, and it gives the most certain guarantees against the danger of premature interment.

There is another irrefragable sign indicated in M. Bouchut's *Traité des Signes de la Mort*. The winner of the Manni prize in 1848 makes a happy application of Laennec's admirable discovery furnished by auscultation of the heart. In the human machine the heart is, properly speaking, the pendulum of life ; so long as this pendulum oscillates, so long as its movements and its sounds are perceived by the ear applied to the breast, existence continues ; it ceases with their disappearance. M. Bouchut only asked for five minutes of observation in the cardiac region, to ascertain by the stethoscope that death had occurred ; the commission of the Institute wished that no decision should be arrived at before a period fifty times as great, that is to say, before at least four hours, which is a very long time. It may be affirmed that half-an-hour of stethoscopic examination will suffice for a medical man ever so little used to auscultation, on condition, however, that this examination should not be made until several hours after the presumed death. The con-

* Report on the prizes founded by the Marquis d'Ourches for the discovery of a simple and popular means of recognising the signs of death.

clusion is then absolute, infallible. So long as the heart speaks to the ear by its contractions there is life; if it be definitely silent, death is certain.

We will now give some details respecting the prize of 20,000 francs, destined by the Marquis d'Ourches for the inventor of a sign of death which shall be within the comprehension of a poor, uneducated villager. Many candidates for it have presented themselves, not only from Paris, not only from twenty different departments, not only from Europe, but from the East, from America as far as Chicago. Some medical men are comprised in this catalogue, but a much larger number consist of inventors without any medical title, nobles and workmen, retired military men and benefited clergy, priests, pastors, and rabbis, public functionaries, schoolmasters, tutors, women, some tradespeople and merchants, a small grocer living in the Gard, and finally one competitor who may be supposed to be a hairdresser, for he says he can recognise death by the hair; only he demands the prize offered to him to buy his secret. What serious work could be looked for in this motley assemblage? What lucubrations could emanate from the brain of these persons ignorant of every scientific fact, who have had the pretension to unveil the mysteries of life and death, and have believed themselves capable of resolving, like Hamlet, the question of 'to be or not to be'? All these efforts could only end in absurd or dangerous processes for the verification of death.

For instance, one proposed an instillation of ammonia into the eye; the other burning on the temples or the region of the heart with an iron heated to white heat; this one recommends injection of strychnine into the stomach; another, an incision in the heel sufficiently deep to reach the fibres of the little toe. One, a German, proposed to magnetise the subject; another to place a strong reflector before the eye, so as to cause contraction of the pupil. This one extols his apparatus for registering movements; that one his spring coffin; another recommends that a ladder should be placed near the coffin, so that the resuscitated person may be able to get out of it; another recommends the placing of a bell-rope in the hands, and a trumpet in the mouth of the corpse.

As a matter of course, the academical commission could not reward any of those strange methods of verifying death, nor many other proceedings, notwithstanding that, strictly speaking, they might be put in practice by ignorant villagers. It consequently decided that there was no reason for awarding the Marquis d'Ourches' great prize. However, it had hoped at one time to be able to award the prize. The competitor was a professor of forensic medicine in a German university. He gave as a constant and infallible sign of death the parchment-like state of the skin at the points where friction had been made with a hard body some hours after death. The implement, a wet brush, is simple; the application, friction for some minutes, easy; and the judgment easily made: the skin in the region rubbed ought to have the appearance of parchment. The commissioners, however, have repeated the experiment on several occasions, and the promised result has seldom appeared. However, as on the one hand, the labour of the learned professor rests on numerous experiments; and as, on the other hand, in the competition instituted by the learned societies equity demands that nationality should be considered as an abstract matter, the

Academy is happy to grant M. Weber, professor at Leipsic, a very honourable mention. The sum of 20,000 francs, left conditionally to the Academy by the Marquis d'Ourches, not having been employed, returns to his heirs. It should soften the regret of the aspirants to the non-awarded prizes to know that the heirs of the Marquis are the poor of the town of Saint-Germain.

The Marquis d'Ourches was a singular but a very sympathetic personage; his life, like his character, displays every imaginable contrast. He belonged to the oldest nobility of France, the family of Ourches having been doubly allied to the ancient dukes of Lorraine. Heir to an illustrious name, he was the last of his race, and died alone and unknown at Batignolles.

Born a marquis, he became a simple workman, and from that time forward he wore the costume all his life. He had a great fortune. The year 1793 despoiled him of it. Escaping the scaffold at the revolution, and a prison under the empire, he contributed by personal exertions, and from his diminished means, to the restoration of the monarchy; but in the midst of all these changes the fortune of his ancestors had melted away, and at the end of his resources the Marquis d'Ourches came to gain his daily bread by helping plumbers, at a wage of sixpence a day. Fifteen years passed thus in poverty, supported in a dignified manner. The labourer rose in grade and became a glass-blower, a worker in glass for scientific instruments, then a skilful constructor; by this hard work, the fallen aristocrat reconquered his titles of nobility.

In the last years of his life the Marquis d'Ourches occupied himself with somnambulism and spiritualism, for which he had the means, an inheritance from the maternal side having placed him in easy circumstances. He tampered much with the so-called spirits, though he sometimes said he found '90 per cent. of juggling amongst them.'

He also gave himself up to experiments in crossing, acclimatising, and even taming animals; he lived on familiar terms with widely differing animal races, endeavouring to accustom dogs, cats, rabbits, deer, horses, tigers, and men to live together in peace and harmony.

The Marquis d'Ourches was always a noble-hearted man; when he was rich, he spent his fortune with his brilliant companions in arms in pleasures to which he largely contributed; when he was poor, he shared his little modicum with his fellow-workmen; and when prosperity again returned to him he never forgot these last, these true friends of his humbler days. He told the Mayor of St. Germain that he always kept at his disposal three or four hundred thousand francs for the construction of an hospital at St. Germain, and he has kept his promise posthumously.

'I have seen death in every aspect,' said a general to Doctor Josat, one of the gentlemen rewarded by the Institute for a book on mortuary houses, 'and it has never had any terrors for me, but I own that I shudder at the notion of finding it at the bottom of a ditch in the cemetery.' The Marquis d'Ourches, brave in all other things, had the same fears of a premature interment. He kept a record of all the stories of underground resurrections; he believed in them, and even asserted that one of his uncles had been buried alive. Hence the foundation of the academic prizes of which we have just set forth the results. This posthumous liberality displays the

complete disinterestedness of the Marquis d'Ourches in a strong light ; he promises a large reward to the inventor of an infallible method of verifying death and preventing premature interment, notwithstanding his knowledge that this proceeding, to be discovered long after his death, could not profit himself in the least.

MACLEAN ON THE SPIRIT-RATION IN THE BRITISH ARMY.

In a recent lecture at the United Service Institution, Surgeon-General Maclean, C.B., made some authoritative but startling statements on this subject which deserve to be very carefully considered. He said : ' If there be any point of military hygiene that may now be regarded as settled beyond doubt or cavil, it is this, that spirits are not only not helpful, but are hurtful to the marching soldier, everywhere I believe, but nowhere more so than in hot climates. The evidence on this point is overwhelming. The medical officers of the French army, who have had great experience in the arduous campaigns in Algeria, denounce the spirit-ration as hurtful ; and Dr. Morache, already quoted as a high authority on military hygiene, declares that, unless coffee had taken the place of spirits, it would have been impossible for the troops to surmount the fatigues of what he justly calls *ces pénibles campagnes*. Were I the medical chief of an army destined to take the field in a tropical climate, not a drop of spirits should, with my consent, accompany it, save what the requirements of the ambulance service demanded. The evidence shows that wherever soldiers, by accident or design, have been cut off from the use of spirits on marches, on active service, in temperate climates exposed to wet and cold, or in the tropics to ardent heat, or in laborious sieges, they have maintained their health, spirits, and discipline far better than when the once-deemed indispensable grog was in daily use. My colleague, Dr. Parkes, and the late Count Wollowicz, in a series of careful experiments on the use of alcohol carried on at Netley, and published in the *Transactions of the Royal Society*, have placed on a sure scientific basis what was before a matter of observation, and have established that alcohol, far from increasing the power of bearing fatigue, even when given in a quantity which many spirit-drinkers would deem within the limits of moderation, lessens muscular force ; and a quantity in excess of this, it was shown, entirely destroyed the power of work. The reason, Dr. Parkes says, was two-fold. There was, in the first place, *narcosis* and blunting of the nervous system—the will did not properly send its commands to the muscles, and the muscles did not respond to the will ; and secondly, the action of the heart was too much increased, and induced palpitation and breathlessness which put a stop to labour. The inference was, "that even any amount of alcohol, although it did not produce symptoms of narcosis, would act injuriously by increasing unnecessarily the action of the heart, which the labour alone had sufficiently augmented." For fatigue, rest and food are the proper remedies. Alcohol given alone under such circumstances can only stimulate the already nearly exhausted heart to fresh exertion. Under some very exceptional circumstances it may be a matter of absolute necessity to do this ; but even then we must follow Dr. Parkes's rule—namely, to give spirits in small quantity, not more than an ounce of brandy, and if possible it should be

mixed with Liebig's meat-extract, which has a great power of removing the sense of fatigue. Dr. Parkes even gives a formula, which is worth bearing in mind, for use under such circumstances ; as for example, when troops, after a fatiguing march, are obliged to engage the enemy without time for rest and food, he advises two ounces of red claret wine, with two teaspoonfuls of Liebig's extract, in half a pint of water. Wine not being available, half an ounce of brandy or rum would be a good substitute.

' It is almost superfluous to add, that the best substitute for alcohol is coffee or tea. The French military medical officers vaunt, and with justice, the superiority of the light wines of their own country over the more strongly brandied wines of Spain and Portugal ; and they point to the fact that, when used in moderation, the aromatic principles and the various salts they contain exercise an effect on the digestive organs which is alike wholesome and agreeable. With all this, the best of them give a decided preference to coffee. Morache, in particular, is emphatic in his testimony, and is even eloquent in its praise as an article of diet, a safe stimulant, an aid to digestion, and an efficient refreshment under fatigue. Coffee forms no part of the ration of the French soldier in time of peace ; but Morache does not hesitate to urge its issue instead of brandy, and he instances certain regiments in which the custom of substituting coffee for the morning *petit verre* had much advanced the cause of temperance.

' That a cup of hot coffee is the best preparation for the fatigues of a march is indisputable, and it should never be omitted. It is much better that the men should have it before leaving their ground, and not at the half-way halt, as was common in my time in India : it invigorates them at starting, protects, particularly the young soldiers, against the gripping abdominal pains to which they are subject, particularly in the dark and chilly hour preceding the dawn ; and the vigour it imparts helps the system to resist the miasm which at this hour is most freely evolved from the soil. It is worthy of remark that coffee was first issued to European troops for this very purpose, on the advice of the great Larrey, during Napoleon's Egyptian campaign.

Professor Maclean mentioned an instructive example of the mischief of spirit-rations served out in hot climates. The troops holding Canton were called on to turn out at midday. A battery of artillery had more cases of insolation than all the rest of the force put together, the reason being, that the canteen was opened by the officer commanding with the 'good intention' of 'fortifying' his men with a glass of grog before starting. Staff Surgeon-Major Becker, an accurate observer, and in this case an eye-witness, was Professor Maclean's authority for this pregnant fact.

FORENSIC OPHTHALMOLOGY.

ON INJURIES OF THE EYE IN THEIR MEDICO-LEGAL RELATIONS. BY PROFESSOR ARLT, OF VIENNA.*

(Continued from page 211.)

If the globe be flattened in the region of the anterior pole (and this is what most frequently occurs), the equatorial diameter must be increased ; at

* *Wiener Medizinische Wochenschrift*, March 7 and 14.

least when the globe at the posterior pole is pressed against the elastic cushion of fat. The dilatation will reach its maximum in the equatorial zone, but will still be considerable on both sides of it. The choroid is, so to speak, inseparably united in front to the corneo-scleral ring by the ciliary muscle (Brücke's tensor choroideæ) and behind to the point of entrance of the optic nerve; between, it is very loosely connected with the sclerotic, and is, indeed, easily removable. At about the middle part, between the above-named inseparable connections, that is to say, where the vasa vorticosa pass to the sclerotic, the two membranes are firmly connected for some extent, not only by the vessels, but also by firm dense connective tissue. The range of close union of these structures is extended by the passage of vessels and nerves near their anterior connections, and by the passage of the large ciliary arteries from the sclerotic into the choroid, around the optic nerve, and especially in the neighbourhood of the posterior pole. If now, through the flattening of the globe, the equatorial zone of the choroid be pressed in the direction of its periphery, while the pressure of the vitreous humour on the retina and choroid remains the same, the pressure will bear on a small portion of the choroid, the resistance of which may be readily overcome; and thus there are produced rupture of the vessels and tissues, and the rents in the tissues must run concentrically to the posterior pole.

Rupture of the vessels may also probably occur in an analogous manner in the neighbourhood of the anterior fixed part of the choroid; direct evidence of this, however, is only obtained after death. Rents in the choroid in front of the equator have, hitherto, however, been observed only in cases where the globe has been acted on by a blunt object. Here the rent of the choroid can be explained by a crack in the sclerotic at this part, just as also many hæmorrhages from the ciliary bodies may be referred to the crushing of the vessels by the rebound of the sclerotic at this part. The laceration of the choroid further backwards, also concentrically to the periphery of the optic papilla, may be traced without doubt to the dragging forward of the portion of choroid lying posteriorly.

Most difficult, without doubt, is the explanation of the lacerated wounds which are observed after a blunt force has acted on the anterior zone of the sclerotic, and which not only affect the sclerotic, but always extend through the uveal tract. It is remarkable that these wounds, through which more or less of the fluid contents of the globe, even a portion of the iris, and perhaps also the whole lens, are instantly protruded, run quite or nearly concentrically to the edge of the cornea, and almost without exception occur above, generally also to the inner side.

In opposition to the opinion of Zander and Geissler (*Injuries of the Eye*, 1864, p. 373) that the globe comes into contact at the lower or lower and outer part with the sclerotic, and above, or above and to the inner side, with the orbit, where it meets with an invincible resistance, in consequence of which the sclerotic is lacerated, and the lens escapes (when violence is offered in this direction) Manz (*Klinische Monatsblatt*, 1865, p. 177) says, 'It is to be observed that it is not the two points of the eye which are directly pressed on, the one by the instrument, the other by the unyielding wall of the orbit, that may be lacerated; this will take place at a relatively free

part, where, while the distension is greatest, the cohesion (or more correctly, the support) is weakest; and this is the portion of sclerotic lying next to the inner and upper border of the cornea.' If it be assumed that large foreign bodies cannot well strike the eye except from below, or from the lower and outer part, and that the eye at this moment is turned upwards, or upwards and inwards, the blow falls generally at the lower, or lower and outer part, on the sclerotic, between the edge of the cornea and the equator of the eye; and the rupture will take place at its least supported point, nearly midway between the part where the force is applied and the opposite point. But if the blow fall on the upper and outer part of the anterior sclerotic zone, as in the case observed in Ruete's clinic, published by Schröter (*Klinische Monatsblatt*, 1866, p. 245) laceration of the sclerotic and uvea takes place at the lower and inner part. That the rent on the sclerotic is almost without exception concentric with the border of the cornea, may fairly be attributed to the fact that the fibres of the sclerotic in the region of the ciliary zone have mostly a concentric arrangement.

Ruptures in the region of the iris (especially iridodialysis) are explained without difficulty by the widening of the corneo-scleral ring through the flattening of the cornea; the ciliary muscle, and not the iris, being firmly connected with the ring. Rents of the iris in a radiating direction depend on pressure of the lens on the iris at the same time that the cornea is flattened, the pupil being contracted.

Distension or laceration of the zonula and rupture of the anterior (or posterior) capsule, and the consequent change in the form and position of the lens, may in many cases be attributed to the sudden widening of the corneo-scleral ring; but in fact they occur also without any such widening, especially in simple concussion of the eye.

No sufficient explanation can be given of the paralysis of the sphincter of the iris and of the accommodation-muscle, until the obscurity attending the so-called commotio retinæ shall have been gradually cleared.

In most of the injuries belonging to this category, the change produced is not in proportion to the force applied, and is rather to be regarded as the product of 'the special condition of the body' (the eye) and of the act of injury. Not only age with its increased fragility of tissue, but also the state of refraction (a higher grade of short-sightedness), and pre-existent though unnoticed ectopia of the crystalline lens, may have much weight in the causation of the injury. The more or less superficial or deep position of the globe must, among other things, be also taken into account.

2. A very frequent result of the impact of a blunt body on the eye (on the lids or edge of the orbit) is effusion of blood under the conjunctiva bulbi, in the loose subconjunctival connective tissue. This, although perhaps limited at first, may, under the influence of coughing, sneezing, &c., attain such extent and thickness that the more or less dark red and distended connective tissue projects partially or entirely round the cornea like a wall. The appearance of subconjunctival ecchymosis some days after the accident, gives rise to the suspicion that the injury has produced effusion of blood deeply within the orbit.

Diagnosis, Prognosis, and Treatment.—The temporary disfigurement, and perhaps compression or distension, are in themselves of no importance. But

a careful testing of the function of the eye, and, when this is not satisfactory, an ophthalmoscopic examination, are necessary, since changes may take place in the interior of the eye or behind it. The blood is reabsorbed in a few days or weeks; a yellow tinge may remain for some time, or, when there is deeply seated effusion of blood, may first appear after some days. The diagnosis from the chemotic swelling of the connective tissue which attends inflammation is furnished by the absence of other phenomena of this process, which indeed must be very intense before it can produce a blood-red wall around the cornea.

In some cases, the formation of subconjunctival cysts has been observed as a result of contusion.

Cold-water dressing, with or without the addition of spirit, or perhaps with tincture of arnica, and avoidance of all causes which impede the return of blood to the superior vena cava, are to be recommended. Incisions are scarcely ever necessary.

3. A blow on the cornea from a relatively small body, which, however, penetrates its substance but little or not at all, very often gives rise to inflammation and suppuration of the cornea; generally in the form of abscess, more rarely of ulcer. This is one of the most dangerous forms of inflammation of the eye.

A second person is rarely concerned in the production of this injury; it is generally due to accident or to the imprudence of the patient, and may arise from the impact of a piece of metal, stone, or wood, a straw or ear of corn, &c. Whether this result may follow when the contusing body comes into contact only with the lid and not directly with the cornea, is not ascertained with accuracy.

This keratitis occurs with greater relative frequency in old than in young subjects, and hence one is justified in ascribing a 'special disposition' to advanced age. Discharge from the lacrymal sac is moreover so often found in persons with corneal abscesses, that one cannot avoid ascribing a part of the subsequent mischief to this complication. In connection with this, the advice is sound, to at once remove or diminish the lacrymal obstruction by dividing the lacrymal canal and introducing a cannula; and to first remove the obstruction in cases where an operation is necessary. The mischievous influence of lacrymal obstruction in the cornea when wounded, is rendered certain by the statistics of operations for the removal of cataract.

Diagnosis.—At the point involved there are developed zone-shaped ciliary injections around the cornea, and an orbicular dull light-grey opacity, which afterwards assumes a yellow colour in proportion to the amount of pus lying behind it in the cornea.

If the corneal abscess be seen for the first time when a portion of the pus is removed, its edges are more or less swollen and very opaque, while the centre is unequally grey and more or less sunken. It may then be doubtful whether it is an ulcer or an abscess that is seen; but this is of no practical importance, since in both cases extension towards the periphery is most to be dreaded. This extension (the 'ulcus cornea serpens' of Sämisch) may take place even after the cessation of all other symptoms of inflammation (ciliary injection, pain, photophobia, and lacrymation), and occurs in an upward or lateral direction as readily as downwards. An ominous forerunner of this extension is a light grey halo around the focus of suppuration.

Along with the suppuration in the cornea, more or

less pus is almost without exception found in the anterior chamber; sometimes almost imperceptible from its sinking behind the corneo-scleral fold, but not unfrequently filling half or two-thirds of the chamber. The occurrence of irido-cyclitis may also give rise not only to a moderate collection of pus, but also to severe pains, lasting day and night, the only effectual remedy for which is to open the anterior chamber.

Prognosis.—An abscess leaves at least an irremovable and more or less complete opacity, which injures sight sometimes through reflection, sometimes through diffusion of light, according as (which is generally the case) the abscess first affects the middle region of the cornea, or extends into it. Even when the patient is placed in the best condition, and the treatment is most correct, the cornea may be so far destroyed that no good can be expected from iridectomy. The further results of extensive or total corneal suppuration (staphyloma, phthisis bulbi, &c.) it is not necessary to discuss here.

Treatment.—Cold compresses may be applied with advantage immediately after the receipt of the injury; but, when suppuration has set in, they are useless, and, instead of them, it is generally advisable at an early period to apply lukewarm chamomile fomentations. The patient should not be allowed to go about; atropia should be dropped into the eye; both eyes should be protected from brilliant light, and the injured one covered with charpie, applied more or less firmly. In most cases, the application of moist heat for ten or twenty minutes several times a day, with the charpie in the intervals, will arrest suppuration. If in the course of one or two days it become evident that suppuration is taking place, and the pus have accumulated in the chamber as high as the edge of the pupil or above it, or if the patient suffer severe pain, an operation ought not to be delayed. The best proceeding is that recommended by Sämisch, of Bonn.

The patient should be in bed, as in many cases the operation is followed by severe, if not long-continued pain; and the patients often faint. The operation is generally performed without anæsthesia. The eye being well fixed, a Gräfe's knife, with its edge directed forward, is introduced into the healthy cornea at the edge of the purulent collection, is pushed into the chamber behind the abscess, and carried to the opposite edge, so that the counter-puncture lies as much as possible in healthy tissue. The incision is then completed by making small and slow cuts from behind forward. The cut should be straight, and should be in the greatest diameter of the corneal bulging. A sufficiently extensive incision cannot be made with a lancet, which has to be depressed at once so as to avoid injury of the iris or capsule. The aqueous humour escapes slowly. The pus in the chamber is not removed by the surgeon, but is left to be absorbed. In many cases, after the escape of the aqueous humour, lumps of pus hang out of the wound, and may be removed by forceps.

The patient should lie quiet on his back for an hour or two after the operation; atropia is then dropped on the eye, and a protective bandage applied. If the pupil do not soon become dilated, the atropia must be repeated every two or three hours. At intervals of twelve or twenty-four hours, a fine probe or a Weber's lacrymal knife is carried through the wound, until a decided decrease of the purulent infiltration and a clearing of the part has set in and continued. The continuance or reappearance

ance of masses of fibrinous exudation behind the purulent collection also indicates that the wound should be opened, or renewed at some point. A distinct and steadily advancing improvement may at once follow the simple opening up of the wound; but sometimes the proceeding has to be repeated ten or twelve times. In a large number of cases treated in this way, notwithstanding that every care is taken both by the patient and by the surgeon, vision is lost. It appears that the failure is attributable to the changes arising from iridocyclitis, which is indicated by the presence of a wide dark red zone around the cornea, and increased tenderness on touch.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

DANIS ON A CERTAIN AND IMMEDIATE SIGN OF DEATH.—The following abstract presents the researches and conclusions of Dr. Leon Danis upon this subject. Our signs of real death are at present either the immediate or probable, or the later or certain. The immediate signs of death have all been proved to be vague; the certain sign, putrefaction, admits of no doubt, but waiting for this precludes all use of means of resuscitation.

In searching for a certain sign of death it may be premised that the brain, the heart, and the lungs are the tripod of organs on which depend all vital processes, and the failure of the influence of one of which is necessarily followed by the failure of that of the others, and death follows necessarily; thus it is correctly said that one may die by the brain, the heart, or the lungs. In order, however, to ascertain the death of the brain or lungs alone, some expensive experiment is required; but in the case of the heart there is not any difficulty. We can learn whether the heart lives, sleeps, or is dead, by the state of the arteries; not, however, by ordinary observation of the pulse.

The plan proposed by Dr. Danis is the denudation and section of the artery—by a surgeon. This axiom is laid down by Dr. Danis, and will not be disputed by physiologists. *'The artery empty, the heart is dead; the heart dead, the whole body has ceased to live.'*

The great advantage to be derived from the employment of this sign is, that the emptying of the arteries must be simultaneous with death, and if it be present, attempts at restoration should be abandoned as the patient is a corpse. If this phenomenon be not present, the attempt to restore life may yet succeed.

The temporal artery, by reason of its nearness to the surface, may be selected for the operation, as also for the slight degree in which it retracts. When the artery has been exposed, its colour should be observed; after death it becomes of a yellowish or orange colour; during life it has the colour of surrounding textures. Its pulsations, if any exist, may then be observed; but it may be noted that the sudden exposure to the air sometimes stops the pulsations; from this, however, it will soon recover, if life be not extinct.

In the dead body, the artery will gape when divided, and little or no blood will flow, other than a few coagula. If the blood should flow by jets, a compress will restrain it.

If it be objected that the patient may be too feeble

for the heart to propel the blood, then it follows that it is too feeble to supply the brain with blood, and death must follow.

W. B. KESTEVEN.

SLAVJANSKY ON THE RETROGRESSIVE CHANGES OF THE EPITHELIAL CELLS IN THE SEROUS LAYER OF THE OVUM OF THE RABBIT.—K. Slavjansky (Ludwig's *Arbeiten*, vol. vii.) describes the degeneration, called by him reticular ('reticulare degeneration'), which the epithelial cells of the serous layer of the ovum undergo in their physiological development. During the development of the ovum, the epithelial cells of the part of the serous layer lying close to the umbilical sac become thin and flat, and in the cells themselves some transparent spots are to be observed. By-and-by the protoplasm disappears, and holes are observed in the cells. These holes gradually enlarge, so that, at last, in place of the epithelial membrane there is to be seen a reticulum of the remains of the protoplasm of the epithelial cells, containing in some places the nuclei. There is thus established a physiological prototype for the pathological degeneration of the epithelium, described by Wagner under the name of fibrinous degeneration, in cases of croup and diphtheria.

W. STIRLING, D.Sc., M.B. (Leipzig).

HELLER ON THE BLOOD-VESSELS OF THE SMALL INTESTINES.—A. Heller (Ludwig's *Arbeiten*, vol. vii.) arrives at the following results.—1. Every villus contains an artery which runs, as a general rule, to the point of the villus without branching. In man only does it begin from the middle of the villus to lose itself in a capillary network. 2. The vein begins either in the point of the villus (rabbit, man) or near to the same (rat), and generally goes directly into the submucous tissues without receiving any lateral branches; or it rises near the base of the villus and receives more or less numerous lateral branches from the glandular layer (dog, cat, pig, hedgehog). 3. In none of the animals examined was there to be found the often cited arrangement of an arterial stem going to the point of the villus, and of a descending venous stem with a simple connecting capillary network between both stems. This is of importance with regard to the erection of the villus.

W. STIRLING, D.Sc., M.B. (Leipzig).

MEDICINE.

CALASTRI ON A CASE OF SUPPURATIVE HEPATITIS FOLLOWED BY EMPYEMA.—Dr. Luigi Calastri, of the civil hospital in Milan, relates the following interesting case in the *Gazzetta Medica Italiana-Lombardia* of February 7.

The subject was a man named Giovanni Barzoni, aged thirty-eight. There was no special family history of disease; and up to the age of thirty-six he enjoyed good health. At that time, he began to suffer from loss of appetite, difficult digestion, epigastric pain, and habitual constipation alternating with diarrhoea, attended with pain in the abdomen. These symptoms returned three or four times in the year, and were treated by the patient himself with purgatives, &c.

In November, 1872, having had an attack of the above-named symptoms in the preceding month, which passed off under his usual treatment in a few days, he was seized with violent pain in the epigastric

region and abdomen, and was obliged to call in medical aid. He stated that the pain chiefly affected the right hypochondrium, and that for three days his skin had been yellow, though, after the use of purgatives, it was less so than at first. The pain in the region of the liver spread to the corresponding shoulder-blade; his digestion was difficult and painful, and he had nausea, meteorism, and constipation alternating with painful diarrhoea. He was treated with purgatives, leeches to the right hypochondrium, antimonial powders, etc.; but as no relief was produced, he was admitted into hospital on February 20, 1873.

On admission, he was visibly emaciated, and had an icteric tint; decubitus was easiest on the left side. The cerebral functions were normal; he complained of slight headache, and loss of appetite; his tongue was entirely covered with a yellowish white coating, and his breath was fetid. The form and movements of the chest were normal; respiration 17. Anteriorly, the chest was unusually resonant, as far as the upper border of the fifth right rib, where liver-dulness commenced, and extended two finger-breadths below the lower border of the ribs. On the right side, splenic dulness commenced at the eighth rib in the axillary line. Auscultation of the heart revealed nothing worthy of note.

The right hypochondriac region was the seat of severe and continued pain. On gentle palpation, the edge of the liver was found to be thickened and painful towards the left part, which was found on percussion to pass beyond the sternal line; on the right, the pain was limited within a line drawn through the nipple. The abdomen was tense, tympanitic, and painless on palpation, however deeply applied; the bowels were open; there was no œdema of the lower limbs. The patient did not appear to have been addicted to drink. The pulse varied from 80 to 90; the urine was scanty, of a greenish brown colour.

On the 21st, ten leeches were applied over the right hypochondrium, and soda lemonade was given. Next day, however, the pain had increased in severity, and the patient was very restless. Local blood-letting was again employed, with great relief; but, in the middle of the day, he had an attack of shivering, followed by heat, and by abundant sweating, which continued through the night. Next morning, he felt better; the physical signs remained just as before; the urine was not albuminous, but contained abundance of bile-pigment. The aguish paroxysms having recurred, cinchona and quinine were given, but without effect; and on March 1 he had a more severe paroxysm than before. After this, the attacks became more frequent; the skin was intensely jaundiced; there was some difficulty of breathing, with impairment of the movements of the chest on the right side, where the vesicular murmur was weakened.

Dr. Calastri arrived at the conclusion that the case was one of suppurative hepatitis, and that the attacks of rigor and heat were dependent on the formation of pus, and not on malaria. There was no splenic tumour; the paroxysms were irregular and frequent, and the sweating was profuse and of long duration.

On March 9, after a severe attack of rigors, followed by heat and prolonged sweating, he vomited some watery mucus; this was followed by a persistent cough, without expectoration. In the afternoon, he complained of pain in the lower costal region of the right side; nothing, however, was discovered here

by physical examination. On the 13th, percussion of the chest anteriorly indicated dulness on the right side from the fourth rib downwards; the respiratory sounds were indistinct, and the vocal vibration impaired; the patient felt sleepy, and there was a miliary eruption in the upper and anterior part of the chest. On the 14th, the signs of effusion in the pleura increased, and Dr. Calastri concluded that there was empyema from extension of the inflammatory process to the chest. He considered, however, that, under the circumstances in which the thoracic effusion had occurred, paracentesis of the chest was not advisable. The patient fell into a state of unconsciousness, and died on the 16th. At no time had any fluctuation been felt in the region of the liver.

At the necropsy, which was made fifty-two hours after death, the right pleura was found to contain about two quarts of sero-purulent fluid with whitish flocculi. The costal pleura near the base was covered with a false membrane of recent formation. The peritoneum contained a small quantity of serum. The stomach and intestines were distended with gas; there were some follicular ulcers in the large intestine, with partial redness and thickening of the mucous membrane. The pancreas was healthy, and the bile-ducts were free. The liver was enlarged by more than one-fourth; its convex surface was adherent to the diaphragm, and here there was found an abscess of the size of a hen's egg, containing thick yellowish pus, and lined with a dense 'pyogenic' membrane. Other small abscesses were also found in the substance of the liver, which was in a state of incipient fatty degeneration. The gall-bladder contained a little thick bile, the kidneys were rather hyperæmic.

The case was then one of suppurative hepatitis, with consecutive extension of the disease to the diaphragmatic pleura on the right side, sero-purulent exudation, and catarrhal colitis. A. HENRY, M.D.

DE RENZI ON RHEUMATIC PARALYSIS OF THE LARYNX.—Professor De Renzi relates in the *Liguria Medica*, 1874 (quoted in *Gazzetta Medica Italiana-Lombardia*, February 28), the case of a servant maid, aged seventeen, who, in consequence of a severe cold caught a little before Christmas, had cough, sore throat, and afterwards aphonia. When she was examined on December 31, the pillars of the fauces, the velum pendulum palati, and the back of the pharynx, were considerably reddened. Laryngoscopic examination showed redness of the entire laryngeal mucous membrane, and especially of the vocal cords, which remained immovable when she attempted to speak: there was no ulceration. She had slight transient headache, a sensation of a ball in her throat, and was easily excited. The diagnosis was, rheumatic paralysis of the larynx, with slight hysteria. Hydrotherapeutic treatment being without effect, faradisation was applied on January 1, to the skin over the larynx, by the electric brush. The next morning, on awaking, she was able to speak, though with a rather muffled voice; and the ability to speak remained till the evening of the 7th, though the electricity was not again applied. On that day, the fauces were found to be slightly reddened: but there was as much redness of the vocal cords as on the first day. On the 8th, she awoke in a state of aphonia; but the voice returned after the application of electricity, and remained normal up to the 16th, under daily faradisation of the skin.

This case, Dr. De Renzi says, suggests two im-

portant considerations. 1. In rheumatic paralysis of the larynx, it is admitted by many that the laryngeal muscles are paralysed through hyperæmia and collateral œdema, dependent on catarrh of the mucous membrane. In the present case, the paralysis was quite independent of the catarrh, since the former disappeared twice, while the latter remained. And it may be supposed that the same cause produced catarrh by its action on the mucous membrane, and paralysis by its action on the laryngeal nerves. 2. The statement of Bruns, Mackenzie, Eulenburg, &c., that laryngeal paralysis requires to be treated by the direct application of electricity to the muscles of the larynx by means of the laryngoscope, is not correct. In the case related, cutaneous faradisation caused the paralysis to disappear with astonishing rapidity. A. HENRY, M.D.

NOTHNAGEL ON THE DIAGNOSIS AND ETIOLOGY OF UNILATERAL INDURATION AND CONTRACTION OF THE LUNG.—Professor H. Nothnagel, in a clinical lecture on this subject (*Volkmann's Sammlung Klinischer Vorträge*, no. 66) mentions some interesting points in connection with physical diagnosis. He confines his remarks entirely to those cases in which the induration and contraction involve the whole of one lung, excluding all partial contractions. The most important elements in the diagnosis of this condition are stated to be derived from the inspection and palpation of the thorax. After describing at some length the well-known deformity of the thorax which is produced by the shrinking of the lung, and insisting upon the fact that there is complete absence of inspiratory expansion on the affected side, he alludes to the situation of the cardiac impulse. The heart is always displaced. When the left lung is affected, the impulse is usually higher and more to the left than natural, although in some cases there is no lateral displacement. When the disease is on the right side, the cardiac impulse is often imperceptible, the organ being covered by the enlarged left lung; if, however, the retraction be very considerable, the impulse may sometimes be discovered in the fourth right intercostal space, close to the sternum.

Another important sign of unilateral shrinking of the left lung is the existence of a distinct systolic impulse in the second left intercostal space, from four to eight centimètres (about $1\frac{1}{2}$ inches to 3 inches) from the left border of the sternum. This is associated with a diastolic shock, which is perceptible to the hand in the same situation. These two signs, although by no means constantly met with, exist in a large number of cases, and when they are present, Nothnagel considers them as the most certain evidence of shrinking of the left lung. In explanation of their production, they are stated to be caused by the pulmonary artery; the systolic impulse being due to the distension of this vessel during the systole, the diastolic shock to the forcible closure of the pulmonary sigmoid valves. Similar phenomena may, however, occur in other diseases in which there is increased pressure in the pulmonary artery—e.g., in mitral stenosis and insufficiency; but in such cases the pulsation is much nearer to the left border of the sternum, and not four to eight centimètres from it. In order that both the systolic impulse and diastolic shock should be produced in the situation named—in the second left intercostal space, four to eight centimètres from the left border of the sternum—the following three conditions are necessary:—1. displacement of the heart to the left; 2. increased

pressure in the pulmonary artery; 3. an induration of the lung covering the pulmonary artery, or so much retraction of this portion of the lung that the base of the heart is left free; and it is only in induration and contraction of the left lung that the concurrence of these three conditions obtains. In only one case of right-sided disease has Nothnagel observed any similar phenomena.

In speaking of percussion as a means of diagnosis, Nothnagel says that there are two signs which, when present, are certain evidence of contracted lung. These are the displacement of the diaphragm on the affected side upwards, and the dragging over of the mediastinum and the healthy lung towards the diseased side. The auscultatory phenomena and the character of the vocal fremitus present nothing diagnostic, as they vary according to the condition of the contracted lung.

Respecting the etiology of induration and contraction of the whole of one lung. Nothnagel says that much the most frequent cause is pleurisy. The pleurisy is the primary lesion, and it leads to a secondary change in the lung. This change consists mainly in a slow growth of connective tissue (a pulmonary cirrhosis), and it is this growth which leads to the fibroid induration and contraction of the organ. This pulmonary induration is only quite an occasional sequence of pleurisy. Why it should occur in some cases and not in others, it is difficult to explain. Nothnagel thinks that the greater the length of time which elapses before the absorption of the exudation commences to take place, the greater is the liability to this fibroid change. Although pleurisy is the most frequent cause of this condition, it may also result from morbid processes commencing in the lung; but even in such cases the pleura is often simultaneously affected. The morbid conditions of the lung, which may give rise to diffuse induration and contraction, are stated to be—abscess, gangrene, croupous pneumonia, and phthisis.

T. HENRY GREEN, M.D.

RECENT PAPERS.

- Clinical and Pathological History of a Case of Fibro-Cellular Sarcoma of the Optic Thalami and Corpora Quadragemina. By Dr. U. Rusconi. (*Gazzetta Medica Italiana-Lombardia*, no. 11, 1874.)
 Leptomenigitis after Aphasia. By Dr. Luczkiewicz. (*Wiener Medizinische Wochenschrift*, no. 13, 1874.)
 On Chronic Peritonitis. By Professor Henoch. (*Berliner Klinische Wochenschrift*, no. 10, 1874.)
 A Contribution to the Study of Encephalopathia Saturnina. By Dr. O. Berger. (*Ibid.* nos. 11 and 12, 1874.)
 A Case of Fungous Embolism. By Dr. Burkart. (*Ibid.* no. 13, 1874.)
 On Uræmia, with Special Reference to its Pathology and Treatment. By Dr. V. Budde. (*Ugeskrift for Læger*, nos. 8, 9, 10, and 11, 1874.)
 On a Case of Progressive Ataxia. By Professor P. Buresi. (*Lo Sperimentale*, March, 1874.)
 Etiology and Prophylaxis of Diphtheritic Angina. By Dr. O. Giacchi. (*Ibid.*)
 The Pathogeny of Hemiparesis. By Dr. O. Berger. (*Virchow's Archiv*, vol. lix. parts 3 and 4.)
 Albuminuria as a Symptom in Epilepsy. By Dr. M. Huppert. (*Ibid.*)
 Clinical Observation of Epileptiform Neurosis dependent on Meningeal Hæmorrhage. By Dr. Barberis. (*Gazzetta delle Cliniche*, nos. 12 and 13, 1874.)

ARMY MEDICAL SERVICE.—Sir Galbraith Logan has retired from the office of Director-General of the Army Medical Department, and is succeeded by Sir William Muir.

DISEASES OF CHILDREN.

JACOBI'S RULES FOR FEEDING BABIES.—Dr. Abraham Jacobi (*New York Medical Record*) gives the following rules.

Nursing Babies.—Overfeeding does more harm than anything else. Nurse a baby of a month or two every two or three hours. Nurse a baby of six months and over, five times in twenty-four hours, and no more. When a baby gets thirsty in the meantime, give it a drink of water, or barley-water; no sugar. In hot weather—but in the hottest days only—mix a few drops of whisky with either water or food, the whisky not to exceed a teaspoonful in twenty-four hours.

Feeding Babies.—Boil a teaspoonful of powdered barley (grind it in a coffee-grinder) and a gill of water, with a little salt, for fifteen minutes; strain it, and mix it with half as much boiled milk, and a lump of white sugar. Give it lukewarm, through a nursing bottle. Keep bottle and mouth-piece in a bowl of water when not in use. Give babies of five and six months, half barley-water and half boiled milk, with salt and white sugar; older babies, more milk in proportion. When babies are very costive, use oatmeal instead of barley. Cook and strain. When your breast-milk is half enough, change off between breast-milk and food. In hot summer weather, try the food with a small strip of blue litmus paper. If the blue paper turn red either make a fresh mess or add a small pinch of baking soda to the food. Infants of six months may have beef-tea or beef-soup once a day, by itself, or mixed with other food. Babies of ten or twelve months may have a crust of bread and a piece of raw beef to suck. No child under two years ought to eat at your table. Give no candies, in fact nothing that is not contained in these rules, without a doctor's order.

Summer Complaint.—It comes from over-feeding and hot and foul air; never from teething. Keep doors and windows open; wash your children with cold water at least twice a day, and oftener in the very hot season. When babies vomit and purge, give nothing to eat or drink for four or six hours, but all the fresh air you can. After that time, you give a few drops of whisky in a teaspoonful of ice-water every ten minutes, but not more until the doctor comes. When there is vomiting and purging, give no milk. Give no laudanum, no paregoric, no soothing syrup, no teas.

CROUSE ON ENCEPHALOID DISEASE OF THE LIVER IN AN INFANT.—Dr. J. H. Crouse of Dayton, Indiana, relates the following interesting case in the *Philadelphia Medical and Surgical Reporter* for March 21.

He was called to see the infant daughter of J. P.—, on July 15, 1873, on account of an enlargement in the side. The patient was about five months old, of lymphatic temperament, and healthy general appearance; the sclerotic was slightly jaundiced, the tongue coated, bowels constipated. Upon examination, he found a slight fulness in the hypochondrium; no tenderness; the swelling was rather hard and immovable, presenting an even surface, with no appearance of fluctuation. There was no enlargement of veins, no pain, nor discoloration of surface.

A gentle laxative was given, and compound iodine ointment applied locally. For two months there was scarcely any change. About October 5, the tumour had become about twice as large as when

first seen. An exploring needle was passed in, after which, with a trocar, Dr. Crouse drew off about two ounces of dark bloody albuminous fluid mixed with pus. The tumour could now be felt to be hard and unyielding, and slightly nodulated; after four weeks the countenance presented the expression seen in most cases of malignancy—worn, haggard, and tired. The tumour extended into the epigastric, right lumbar, and umbilical regions, pushing the diaphragm high up, and compressing the right lung. The patient died on January 30.

At the necropsy, thirty hours after death, the growth was found to fill almost the entire abdominal cavity. The tumour was enveloped in a fibrous sheath, and was firmly adherent to the walls of the abdomen and surrounding viscera. Its origin was traced to the right lobe of the liver, which was greatly enlarged and softened. The left lobe was greatly diminished in size. The tumour contained two large cysts, from which were discharged three pints of ichorous bloody and offensive pus. The substance of the tumour was highly vascular; large blood-vessels permeated the entire structure, strong fibrous bands passing through it, giving a grating sound when cut through by the scalpel. The entire mass was estimated to weigh fifteen or twenty pounds. A microscopical examination proved it to be true encephaloid disease. The remaining abdominal viscera presented a healthy appearance. The points of interest, Dr. Crouse shows, are the early age at which the disease appears (he believes it from the family history to have been probably congenital); the absence of pain throughout, and of constitutional symptoms until a late period of the disease; and the large size of the tumour. Both parents were healthy, but the mother had lost two aunts by scirrhus.

RECENT PAPERS.

Nosocomial Septicæmia in Infants. By Dr. E. Hervieux. (*Archives de Toxicologie*, April 1874.)

SURGERY.

OPPIZZI ON LITHOTRITY IN CHILDREN.—Dr. Gerolamo Oppizzi, assistant in the surgical clinic of the University of Pavia, says (*Gazzetta Medica Italiana-Lombardia*, January 24) that the prevalent opinion that lithotritry is less adapted for children than lithotomy, although supported by high authority, is susceptible of exception. In proof of this, he relates two cases which occurred last year in the practice of Professor Porta.

The first patient was a girl, aged five, named Luigia de Gorli, who was admitted on April 5, with stone in the bladder. On the 8th, the child having been anæsthetised by chloroform, a small polypus forceps was introduced, and an attempt was made to crush the stone (which was about three-fifths of an inch in diameter), but in vain; and the instrument was removed without doing any mischief. On the 18th, a small Matthieu's lithotrite was introduced, chloroform having been first given; the instrument moved freely in the bladder, which was not distended with water or urine, but the stone could not be found. On May 6, a small lithoclast, with a flattened beak, was introduced, and the calculus was crushed; the detritus brought away by the instrument showed it to consist of phosphate of lime. In half-an-hour after

the operation, the child sat up in bed, feeling no inconvenience; and there was no subsequent fever. In the course of the day she passed a gramme of small fragments; and some days later she spontaneously voided, without pain, two small angular pieces. Other portions also were probably discharged unnoticed with the urine. At the end of the week after the operation, the symptoms of stone had quite disappeared, and no trace of calculus could be discovered on examination. She was discharged cured on June 19.

The second case was that of a boy, Felice Ramajoli, aged six, who was admitted on July 23. On August 3, chloroform having been given, a small lithotrite was introduced and the stone crushed. The operation last four minutes. Scarcely any febrile reaction followed; and fragments were voided for some days. The operation was repeated on the 10th, and again on the 15th. The bladder was allowed to remain empty on each occasion. On September 6, he was discharged, the symptoms having disappeared, and no trace of calculus remaining. Dr. Oppizzi has since seen him several times, and has ascertained that there is no return of the disease.

In commenting on these cases, Dr. Oppizzi says that these two cases of lithotripsy in children are without doubt exceptional in the ease with which the operation was performed, its rapid success, and the absence of any subsequent complications. Such a fortunate result is certainly not always to be expected; but for small and brittle calculi, lithotripsy is to be preferred, as being attended with less danger to life than lithotomy. A. HENRY, M.D.

LEIRSINK ON A CASE OF FALSE ANEURISM OF THE ANTERIOR TIBIAL ARTERY: APPLICATION OF ESMARCH'S APPARATUS.—Dr. Leirsink relates in the *Deutsche Zeitschrift für Chirurgie* for December, 1873, a case in which a false aneurism was produced by wound of the anterior tibial artery. While Dr. Leirsink was making the diagnosis, and had his stethoscope applied to the part, the aneurism burst. Esmarch's apparatus was immediately applied: the aneurism was laid open, the clots turned out, and the vessel ligatured. The patient's recovery was complete. A. HENRY, M.D.

BOTTINI ON REMOVAL OF A LARGE FIBROSARCOMA OF THE NECK.—Professor Bottini communicated to the Royal Academy of Medicine in Turin on December 19th (*Giornale dell' Accademia*, January 20), the details of the following case.

Maddalena Comoli, aged twenty-seven, a woman of delicate frame, but good health, perceived in February, 1872, a small subcutaneous nodule, of the size of an almond, on the left side of the neck, in the space between the trapezius and sterno-mastoid muscles. The tumour increased in size, and she was treated by several medical men without success; she also applied poultices and various empirical remedies.

On her admission to the hospital at Novara on October 14, 1873, the left side of the neck was occupied by a tumour of the size of an adult head. The posterior part presented a large circular ulcerated surface, with a rather fetid ichorous discharge, and having at several points masses of fungous granulations. The skin covering the tumour was very tense, of a violet colour near the edge of the ulcer, and marked by arborescent veins. The subclavian artery appeared to be in close contact with the tumour; on gently pressing the vessel backward, the pulse in the

corresponding radial artery was immediately stopped. The impulse of the carotid artery was scarcely perceptible, this vessel being pushed against the vertebral column by a projecting portion of the tumour. The patient could scarcely move her head; she suffered from orthopnoea, and, although the tumour was quite painless, she had several times severe pain running down to the scapula and chest.

On October 18, the tumour was removed in the following manner, local anæsthesia being used. Dr. Bottini made a slightly curved incision through the integuments over the occipital fossa, along the spine, as far as the middle of the left scapula. The fibres of the trapezius having been divided, the tumour was found to be enclosed in the deep fascia, to which it was firmly adherent, especially towards the ligamentum nuchæ. The strong adhesions of the tumour to the spinous processes of the lower cervical and upper dorsal vertebrae having been broken through, Dr. Bottini proceeded to remove it from its base, which was entangled among the bundles of the splenius and levator anguli scapulae. Another incision was made from the occipital fossa to the middle of the scapula, and the flap thus formed was turned back as far as the clavicle; and, the tumour being held up by an assistant, Dr. Bottini succeeded in removing it by means of his fingers, aided by a few careful strokes with scissors. More veins than arteries required ligature. The loss of blood was very small. At the bottom of the wound, the carotid and subclavian arteries were seen pulsating in their proper situations; the internal jugular vein was exposed. The wound was united above and below by the twisted suture; the middle part, where the integument was deficient in consequence of the ulceration, was dressed with carbolised glycerine. The patient made a good recovery. A. HENRY, M.D.

OBSTETRICS AND GYNÆCOLOGY.

BOUCHUT ON THE DEATH OF AN INFANT FROM USING AN ACETATE OF LEAD LOTION TO THE NIPPLES.—M. Bouchut (*Gazette des Hôpitaux*, 1873) mentions a case where a lady had used a lotion called 'Eau de Mad. Delacour,' a favourite quack remedy in Paris for sore nipples. She had omitted to wash the lotion off before putting the child to the breast. It was seized with violent colic, and died in a few days with all the usual symptoms of lead-poisoning.

W. C. GRIGG, M.D.

WALLIS ON AN ADDITIONAL METHOD FOR REMOVING FIBROIDS OF THE UTERUS.—P. Wallis (*Dorpat Medizinische Zeitschrift*, vol. iv. 1873) states that in two cases where he failed to remove the growths by the usual methods, he succeeded admirably by means of his hand, tearing through the attachments. Both cases did exceedingly well. The tumour in the one case was about the size of a man's fist; in the other a small soft fibroid.

W. C. GRIGG, M.D.

HECHT ON PLACENTA PRÆVIA, COUPLED WITH FIBROID OF THE UTERUS.—Dr. Hecht (*Allgemeine Wiener Med. Zeitung*, 1873, no. 46) believes this to be the first published case. The patient was a primipara. Up to the eighth month of pregnancy she had been very well, when suddenly she began to lose blood; the hæmorrhage continued for eight days, becoming every day worse. On examination *per vaginam*, there was found in the posterior *cul-de-sac*

at the brim of the pelvis an immovable half globular solid tumour, filling up two-thirds of the inlet, and projecting downwards and backwards into the hollow of the sacrum. *Per rectum*, the relations of the tumour were readily made out. It grew from the posterior wall of the cervix and uterus, impinging on the canal. The child was alive; the head was high up, the os slightly dilated over it, and between the finger and the head was the soft placental mass. The hand, on account of the tumour, was with difficulty introduced and the child was turned, and after much trouble extracted. After delivery, the fibroid could be easily defined as growing from the lower portion of the cervix. The woman died within nine hours, from the effects of the great loss of blood. No *post mortem* examination was allowed.

W. C. GRIGG, M.D.

PUBLIC HEALTH.

WANKLYN ON THE ANALYSIS OF MILK.—In reply to Professor Voelcker's paper, of which we recently gave an account, Mr. J. A. Wanklyn writes: 'In it I read some amusing, but not very wise, comments upon a little "Manual of Milk Analysis," which I have recently published. The Doctor says one might as well talk of a "normal potato," or a "normal cabbage," or a "normal pig," as of normal milk.

'Doubtless this is very funny, but it is neither happy nor true. Potatoes vary greatly in size and weight; some are ten times as big or as heavy as others, but even among the Doctor's own analyses we look in vain for examples of the percentage of milk solids having doubled. After having indulged in such comparisons, it was hardly to be expected that the Doctor should say precisely what it is that I maintain is so very constant in milk. I maintain that the percentage of "solids not fat" is a very constant quantity; and, notwithstanding the generally unsatisfactory nature of his analyses, Dr. Voelcker's results do not entirely conceal this constancy.

'Those who are familiar with the subject will know that no such irregularities as Dr. Voelcker mentions in his paper were observed in Sweden, and that there is the most cogent evidence in favour of there being certain regularities in the composition of milk.

'It is obvious also that irregularities of composition would be simulated by defective analyses. The drying up of milk solids was, until recently, a most tedious and uncertain operation; but, with the modifications introduced by myself, it has now become one of the easiest and most accurate operations which the chemist has to perform.

'I have very little doubt that the extraordinary irregularities described by Dr. Voelcker depend upon defective analysis, and not upon real differences in the samples.

'In Dr. Voelcker's paper he gives a tabular statement of his Cirencester results. From this we gather that the evening milk in October contained 3.76 per cent. of milk-sugar; and that in November the evening milk contained 5.68 per cent. of milk-sugar. Equally curious was the percentage of ash in this wonderful milk, viz., 0.58 in October and 1.15 per cent. in November.

'For my part, I cannot accept these results as true, and regard them as merely affording evidence of the badness of the analyses.'

MACADAM ON THE QUALITY OF MILK SUPPLIED TO TOWNS.—Dr. Stephenson Macadam, in a paper recently read before the North British Branch of the Pharmaceutical Society (*Pharmaceutical Journal*, April 11), says that the recent prosecutions in Edinburgh and other cities and towns, in reference to the adulteration of milk, have proved that there is great necessity for more full information regarding the chemical composition of genuine or normal milk. Having been professionally engaged in some of the cases of alleged adulteration, and having acquired a mass of results regarding the analyses of milk, he has thought it right to give publicity to these researches.

In carrying on the analysis of milk, he says, the special points which may be determined are—

- (1) Specific gravity of the milk.
- (2) Percentage of cream by volume.
- (3) " " solids by weight.
- (4) " " solids not fat "
- (5) " " fat or butter "
- (6) " " ash in solids "

Where it is possible, all these points should be determined. Some chemists attempt to despise the specific gravity and cream tests, and stand by the solids and fat only; whilst others hold, and correctly so, that the specific gravity and cream determinations are excellent guides when they are properly carried out. Necessarily, when all the points are determined—the specific gravity as well as the solids, and the cream as well as the fat—both parties must be satisfied, as the one affords a check to the other, and double certainty and accuracy of results are obtained.

The *specific gravity* is best taken by the ordinary specific gravity bottle, holding 1,000 grains of water at 60° F. The milk should be agitated previously, so as to mix the fat or cream thoroughly throughout, but care must be taken that the agitation is not so violent as to incorporate air-bells with the milk. The temperature of the milk at the time should be 60° F. if possible, but, if slightly above or below that temperature, then an allowance of two-tenths may be made for every degree above or below, being added to the weight when the temperature is above 60° F., and being abstracted from the weight when the temperature is below 60° F. The hydrometers which are supplied with the ordinary lactometers are seldom correct, and, moreover, there is greater uncertainty in reading off the exact figure on the stem indicative of the specific gravity. I always employ the specific gravity bottle. Taking genuine milk derived direct from the udders of the cows belonging to three large dairies in the neighbourhood of Edinburgh, I find the specific gravity to range from 1028.4 to 1035.7; the average of forty-four trials with different milks being 1032.20 (water=1000.00). The variations in the specific gravity of the milks ranging over 7 degrees, undoubtedly indicate a difference in the composition of the milks and in the quantities of the respective components.

The *cream* is determined in an elongated vessel of uniform width, and graduated at the upper part so as to indicate accurately from 1 to 25 per cent. of the whole capacity. The precautions necessary for the uniform and accurate estimation of the proportion of cream obtainable from milk by this creamometer are (1) that the vessels should be of similar size, so as to admit of the fat-globules rising to the surface with equal facility; (2) that the milk should be taken as fresh from the cow as possible, or

that, in contrasting the relative qualities of samples of milk, they should be taken about the same length of time from the cow; (3) that the milk should be well agitated before being placed in the graduated vessel; (4) that the temperature of the milk should be about 60° F.; (5) that the temperature of the room be kept about 60° F.; and (6) that the respective milks be allowed to remain in the creamometers for the same length of time, say twenty-four hours. Working in this manner, I find that genuine milk throws up a proportion of cream ranging from 5 to 11½ per cent. by volume, whilst the average of forty-four trials gave 7·8 per cent.

The *total solids* in milk may be readily estimated by evaporating a given weight of the milk in platinum vessels heated on a water bath. A convenient and excellent bath may be constructed from a common iron pot, about eight inches wide and four inches deep, covered with a sheet of copper-plate about ten inches square, which can be kept in its place by a band being cut out at each side and bent down to embrace the pot. Four circular openings are cut in the copper cover, which admit of four flat platinum basins, about two inches in diameter, being set in the bath. The square corners of the copper cover form a hot plate when the bath is in working order. The milk to be tested having been agitated, a portion is poured into one of the platinum basins and weighed. The amount should run from 80 to 100 grains. The basin and contents are then placed on the water bath, and the water kept briskly boiling for at least two hours. Probably to ensure the thorough drying of the residue, three hours should be taken in all trials, so as to have uniformity in mode of working and greater accuracy in result. The basin and contents are then re-weighed, and the total solids from the given amount of milk are obtained. A calculation then gives the percentage of total solids by weight, and I find that genuine milk gives from 10·57 to 14·54 per cent., the average of forty-four trials being 12·04. There is thus a difference of 4 per cent. in the amount of solids obtainable from samples of genuine or normal milk.

The *solids not fat* are estimated by taking the total solids contained in the platinum basin, and extracting the fat by ether, at the same time heating gently over a vessel containing hot water. On settling for a minute, the ether may then be decanted off into a small weighed beaker. The ether treatment of the total solids should be repeated other three times, so that the solids are acted upon four times by the ether. On drying up the residue in the platinum basin, and re-weighing, the proportion of solids not fat in the amount of milk employed is obtained, and a calculation will give the percentage. Genuine milk gives from 8·74 to 11·23 per cent. of the solids not fat—the average of forty-four trials being 9·62 per cent.

The *fat* may be determined in two ways, either by the loss in weight of the total solids as compared with the solids not fat, or by the evaporation of the ethereal solution and weighing the fatty residue. I do not find the evaporation method so accurate as the estimation by loss. There is apparently some of the fatty matter which escapes over the side of the vessel even when the evaporation is conducted in glass beakers. The difference in weight between the total solids and the solids not fat gives always a higher result and one which I consider is more accurate. Taking, therefore, the loss in weight due

to the extraction of the fat from the total solids by the ether, I find that genuine milk gives a percentage of fat ranging from 1·56 to 3·32, the average of 44 trials being 2·44.

The *ash in the solids* is estimated by burning off the organic constituents and weighing the residue. In genuine milk the ash ranges from 0·62 to 0·76 per cent., the average being 0·69 per cent.

In carrying on these researches, genuine milk was obtained in every instance direct from the udder of the cow. My assistant, Mr. William Jack, went to three large dairies and personally took the samples. He inspected the pails before the milking was commenced, saw all the cows milked, and sampled every milk himself.

From dairy A there were altogether 16 samples taken from 14 cows, 12 of the samples were from the entire runnings of milk from 12 cows, whilst two of the samples were the first of the runnings, and the remaining two samples were the last of the runnings from the remaining two cows. The first five and the last five of the 16 samples were fully analysed, and the results are given in the following table.

| DAIRY A. No. of Cow. | Specific gravity of milk. | Cream per cent. by vol. | Total solids per cent. by weight. | Solids not fat, per cent. by weight. | Fat per cent. by weight. | Ash in solids per cent. by weight. |
|---------------------------|---------------------------|-------------------------|-----------------------------------|--------------------------------------|--------------------------|------------------------------------|
| 12 first of runnings | 1032·9 | 7 | 11·57 | 9·32 | 2·25 | 0·71 |
| 16 last of runnings | 1031·2 | 10 | 12·32 | 9·30 | 3·02 | 0·68 |
| 2 whole runnings | 1033·4 | 5½ | 11·39 | 9·52 | 1·87 | 0·72 |
| 32 first of runnings | 1034·1 | 5 | 11·25 | 9·28 | 1·97 | 0·69 |
| 36 last of runnings | 1029·4 | 11½ | 13·66 | 9·32 | 4·34 | 0·70 |
| 10 whole runnings | 1030·4 | 6 | 10·57 | 8·74 | 1·83 | 0·67 |
| 11 " " | 1032·7 | 5 | 11·42 | 9·70 | 1·72 | 0·70 |
| 12 " " | 1031 | 6 | 11·51 | 9·55 | 1·96 | 0·69 |
| 13 " " | 1031·1 | 9 | 12·62 | 10·04 | 2·58 | 0·74 |
| 14 " " | 1028·4 | 10 | 11·96 | 9·18 | 2·78 | 0·70 |
| Average of the 10 samples | 1031·46 | 7½ | 11·827 | 9·395 | 2·432 | 0·70 |

From the above table it will be observed, that, taking the whole runnings, the specific gravity of the milk ranged from 1028·4 to 1033·4, the cream from 5 to 10, the total solids from 10·57 to 12·62, the solids not fat from 8·74 to 10·04, the fat from 1·72 to 2·78, and the ash from 0·67 to 0·74; whilst the average of the ten experiments gave specific gravity 1031·46, cream 7½, total solids, 11·827, solids not fat 9·395, fat 2·432, and ash 0·70.

The samples of first runnings were markedly inferior in quality, whilst the samples of last runnings were as markedly superior in quality; in no. 1 cow the proportions of cream being 7 to 10 and fat 2·25 to 3·02, whilst in no. 3 cow the variation in cream was 5 to 11½, and the percentage of fat 1·97 to 4·34. It may be stated that the cows, nos. 1, 2, 10, 11, 12, 13, and 14, were of the 'cross' breed, whilst no. 3 was an 'Ayrshire'; that nos. 1 and 2 had calved in January, no. 3 in November, nos. 10 and 11 in June, no. 12 in December, and nos. 13 and 14 in July; and that the cows were fed three times a day, viz., at 7 a.m. mash of draff, oilcake, and boiled turnips; at 12 noon draff and raw potatoes, and at 7 p.m. mash, raw turnips and hay.

From dairy B there were 22 samples of milk taken, 18 of which were from the whole runnings of 18 cows, whilst two samples were the first runnings, and two samples were the last runnings of milk from other

two cows. All of these samples were fully analysed and the following results were obtained.

| DAIRY B. No. of Cow. | Specific gravity of milk. | Cream per cent. by vol. | Total solids per cent. by weight. | Solids not fat, per cent. by weight. | Fat per cent. by weight. | Ash in solids, per cent. by weight. |
|---------------------------|---------------------------|-------------------------|-----------------------------------|--------------------------------------|--------------------------|-------------------------------------|
| 1st first of runnings | 1033'6 | 5 | 10'47 | 9'15 | 1'32 | 0'67 |
| 1st last of runnings | 1030'5 | 13 | 12'94 | 9'17 | 3'77 | 0'73 |
| 2 whole runnings | 1030'5 | 8 | 12'57 | 9'88 | 2'69 | 0'74 |
| 3 " " | 1033'7 | 7 | 11'75 | 10'19 | 1'56 | 0'71 |
| 4 " " | 1033'7 | 8 | 11'91 | 9'32 | 2'59 | 0'68 |
| 5 " " | 1031'8 | 10 | 12'18 | 9'24 | 2'94 | 0'65 |
| 6th first of runnings | 1033'4 | 10 | 10'57 | 9'03 | 1'54 | 0'62 |
| 6th last of runnings | 1029'0 | 14 | 14'09 | 8'99 | 5'10 | 0'59 |
| 7 whole runnings | 1032'0 | 7 | 12'17 | 9'93 | 2'24 | 0'65 |
| 8 " " | 1032'5 | 7 | 11'97 | 9'70 | 2'27 | 0'67 |
| 9 " " | 1031'7 | 7 | 11'52 | 9'23 | 2'29 | 0'62 |
| 10 " " | 1032'8 | 6 | 11'24 | 9'55 | 1'69 | 0'71 |
| 11 " " | 1032'8 | 7 | 11'84 | 9'73 | 2'11 | 0'72 |
| 12 " " | 1030'6 | 9 | 11'66 | 8'94 | 2'72 | 0'64 |
| 13 " " | 1030'6 | 9 | 11'98 | 9'37 | 2'61 | 0'68 |
| 14 " " | 1033'5 | 8 | 12'33 | 9'95 | 2'38 | 0'72 |
| 15 " " | 1031'1 | 6 | 11'48 | 9'52 | 1'96 | 0'73 |
| 16 " " | 1033'4 | 6 | 11'37 | 9'73 | 1'64 | 0'70 |
| 17 " " | 1032'7 | 6 | 11'29 | 9'54 | 1'75 | 0'75 |
| 18 " " | 1029'6 | 8 | 11'41 | 8'85 | 2'56 | 0'69 |
| 19 " " | 1034'0 | 10 | 13'85 | 10'79 | 3'06 | 0'76 |
| 20 " " | 1031'3 | 11 | 12'48 | 9'16 | 3'32 | 0'68 |
| Average of the 22 samples | 1032'14 | 8 | 11'95 | 9'50 | 2'453 | 0'69 |

Taking the above analyses and leaving out the special experiments on the first and last of the runnings of the two cows, nos. 1 and 6, it will be found that over the whole runnings given by each cow, the specific gravity ranged from 1029'6 to 1034'0, the cream from 6 to 11, the total solids from 11'24 to 13'85, the solids not fat from 8'85 to 10'79, the fat from 1'56 to 3'32, and the ash from 0'62 to 0'76, whilst the average of the whole twenty-two analyses gave specific gravity 1032'14, cream 8'0, total solids 11'95, solids not fat 9'50, fat 2'453, and ash 0'69. The samples of the first runnings were again much inferior in cream and fat to the last runnings; thus in cow no. 1 the difference was in cream 5 to 12, and fat 1'32 to 3'77, whilst in cow no. 6, the variation in cream was 5 to 14, and in fat 1'54 to 5'10. In this dairy the cows nos. 1, 7, 8, 9, 10, 11, and 12 were English, nos. 2, 3, 4, 5, 6, 13, 14, 15, 16, 17, 18, and 20 were Ayrshire, and no. 19 was a cross; and the calving of the cows had taken place in January for nos. 1, 8, and 9; October for nos. 2, 3, 4, 5, and 6; December for nos. 7, 10, 11, 12, and 13; August for nos. 14, 15, and 18; September for nos. 16 and 17; June for no. 19, whose milk was nearly out, and February for no. 20, whose milk was only two weeks old. All the cows were fed three times a day on draff and raw turnips.

From dairy C, twelve samples of milk were taken from twelve different cows, and gave the following analytical results (*see next column*).

The above results show that in Dairy C, the milk also varied much in all the testing qualities. Thus, the specific gravity ranged from 1030'4 to 1035'7, cream from 6 to 11; total solids from 10'92 to 14'54; solids not fat, from 9'16 to 11'23; fat, from 1'74 to 3'31, and ash from 0'62 to 0'73; whilst the average of the whole 12 samples gave specific gravity 1033, cream 8, total solids 12'36, solids not fat, 9'91, fat 2'45, and ash 0'69. In this dairy the cows, nos. 1, 2 and 9 were Ayrshire; nos. 3, 4, 5, 6, 7, 8 and 12 were cross; and nos. 10 and 11 were English; and the food consisted of draff, turnips, and oilcake at

5.30 a.m.; draff and turnips at 12 noon, and draff, turnips, and oilcake at 6 p.m.

| DAIRY C. No. of Cow. | Specific gravity of milk. | Cream per cent. by vol. | Total solids per cent. by weight. | Solids not fat, per cent. by weight. | Fat per cent. by weight. | Ash in solids per cent. by weight. |
|---------------------------|---------------------------|-------------------------|-----------------------------------|--------------------------------------|--------------------------|------------------------------------|
| 1 whole runnings | 1031'5 | 9 | 12'92 | 9'94 | 2'98 | 0'72 |
| 2 " " | 1031'6 | 10 | 12'73 | 9'71 | 3'02 | 0'69 |
| 3 " " | 1032'6 | 9 | 12'94 | 10'15 | 2'79 | 0'73 |
| 4 " " | 1034'8 | 6 | 11'96 | 10'22 | 1'74 | 0'65 |
| 5 " " | 1034'4 | 6 | 11'88 | 10'04 | 1'84 | 0'68 |
| 6 " " | 1031'9 | 6 | 10'92 | 9'16 | 1'76 | 0'62 |
| 7 " " | 1032'9 | 6 | 11'04 | 9'34 | 1'70 | 0'64 |
| 8 " " | 1035'7 | 11 | 14'54 | 11'23 | 3'31 | 0'73 |
| 9 " " | 1030'4 | 8 | 11'93 | 9'37 | 2'56 | 0'69 |
| 10 " " | 1031'8 | 8 | 12'22 | 9'69 | 2'53 | 0'70 |
| 11 " " | 1034'4 | 10 | 13'33 | 10'02 | 3'31 | 0'71 |
| 12 " " | 1034'3 | 6 | 11'93 | 10'07 | 1'86 | 0'69 |
| Average of the 12 samples | 1033'0 | 8 | 12'36 | 9'91 | 2'45 | 0'69 |

The average quality of the milk supplied to Edinburgh by the three dairies may be better observed by placing the averages side by side, and then striking an average of the whole samples derived from the 40 different cows. This average of the whole trials may then be contrasted with the lowest and highest results obtained from the whole samples in specific gravity, cream, total solids, solids not fat, fat and ash. The following table exhibits these points.

| | Specific gravity of milk. | Cream per cent. by vol. | Total solids per cent. by weight. | Solids not fat, per cent. by weight. | Fat per cent. by weight. | Ash in solids per cent. by weight. |
|---|---------------------------|-------------------------|-----------------------------------|--------------------------------------|--------------------------|------------------------------------|
| Dairy A average | 1031'46 | 7½ | 11'827 | 9'395 | 2'432 | 0'70 |
| " B " | 1032'14 | 8 | 11'95 | 9'50 | 2'453 | 0'69 |
| " C " | 1033'00 | 8 | 12'36 | 9'91 | 2'45 | 0'69 |
| Average of three dairies, representing forty cows' milk | 1032'2 | 7'8 | 12'04 | 9'60 | 2'44 | 0'69 |
| In all trials— | | | | | | |
| Lowest | 1028'4 | 5 | 10'57 | 8'74 | 1'56 | 0'62 |
| Highest | 1035'7 | 11½ | 14'54 | 11'23 | 3'32 | 0'76 |

These latter figures show that the specific gravity of milk of undoubted genuine quality may range from 1028'4 to 1035'7, or more than 7 degrees, the cream from 5 to 11½, or more than double; the total solids from 10'57 to 14'54, or 4 per cent.; the solids not fat from 8'74 to 11'23, or 2½ per cent.; the fat from 1'56 to 3'32, or more than double, and the ash from 0'62 to 0'76.

These results prove conclusively that milk taken from different dairies varies in chemical composition, and that milk taken from different cows in the same dairy varies still more in chemical properties, notwithstanding that the cows are housed in the same way, fed at the same time and manner, and milked at the same hours. No doubt the quality of the milk must be influenced not only by the food but by the water in the food, the temperature of the byre, the season of the year, whether summer or winter, as well as probably the breed of cow, age, time of calving, and exact state of health of each cow at the time of milking.

The beneficial effects of improved feeding are apparent in several trials which I have made since the foregoing results were tabulated, on the milk of four of the cows belonging to dairy C. The milk was

taken from the cows during the day when it is generally supposed that the milk is richer; but besides that, the dairyman stated that he had commenced to give his cows more nutritious food. The analytical results of the testing of these latter samples of milk were as follows:—

| No. of Cow. | Specific gravity of milk. | Cream per cent. by vol. | Total solids per cent. by weight. | Solids not fat, per cent. by weight. | Fat per cent. by weight. | Ash in solids per cent. by weight. |
|--------------------------|---------------------------|-------------------------|-----------------------------------|--------------------------------------|--------------------------|------------------------------------|
| 1 whole runnings | 1032'5 | 12 | 14'41 | 10'47 | 3'94 | 0'73 |
| 2 " | 1033'6 | 7½ | 12'64 | 10'41 | 2'23 | 0'71 |
| 3 " | 1033'3 | 10 | 14'21 | 11'05 | 3'16 | 0'75 |
| 4 " | 1030 | 10 | 12'91 | 9'70 | 3'21 | 0'74 |
| Average of the 4 samples | 1032'3 | 10 | 13'54 | 10'41 | 3'13 | 0'73 |

These results show a decided increase in the proportion of the several ingredients in the milk, due apparently to the better feeding of the cows.

(To be continued.)

CORRESPONDENCE.

To the Editor of the LONDON MEDICAL RECORD.

CIRCULATORY NOMENCLATURE.

SIR,—Is there no hope of a reform in the nomenclature of the circulatory system?

At present, the confusion arising from the pulmonary veins and arteries becoming pulmonary arteries and veins entirely destroys the perfect beauty and simplicity of the circulatory system.

If, instead of right lobe and left lobe of the heart, venous lobe and arterial lobe were substituted; for right auricle venous auricle, for right ventricle venous ventricle; and in the left lobe arterial auricle and arterial ventricle for left auricle and left ventricle; and all blood-vessels to and from either maintaining their names respectively, as veins and arteries, there would no longer remain the anomaly of the venous blood being carried through an artery to the lungs, and returning as arterial blood through veins back to the heart.

Surely, the advantage of such a change would counter-balance the evil of the abandonment of the original idea of all vessels leading to the heart being veins, and all leading from the heart, arteries.

J. M. W.

April 1, 1874.

[Our correspondent's suggestion would have much to recommend it, if the nomenclature of the circulatory apparatus had to be made for the first time, or were less thoroughly fixed than it is. But custom, 'Quem penes imperium est, et jus, et norma loquendi,' has so completely established the present nomenclature, that any change can scarcely be hoped for.]

MISCELLANY.

MISSIONARY MORTALITY.—The Rev. John A. Vinton has prepared some interesting statistics of the mortality of missionaries at various foreign stations. In Western Africa, Southern India, Southern China, and the Indian Archipelago, the mortality has been from three to nearly seven times as great as the American Experience Tables indicate, while in the Sandwich Islands and in Southern Africa the aggregate mortality has been less. In the

Sandwich Islands, though lying within the tropics, the mountainous nature of the country enables foreigners to select places of residence where the air is as mild as in the mountains of Tennessee; and in South Africa, the mission stations are on an elevated plateau.

But in all that belt of country commencing with Turkey, and extending eastward and southward through Syria, Persia, India, and Southern China, and especially in the Indian Ocean, the mortality of American missionaries has been excessive. In these countries, fevers and the cholera have caused a large ratio of the deaths, while only a very small number have died by violence.

In all the unhealthy countries, with the singular exception of Persia, the mortality among women is much greater than among men. This may be partly accounted for by the younger age of embarkation and the less previous exposure to hardship. Among the missionaries to Turkey, the mortality among females who embarked under the age of twenty-five has been about two and a half times as great as among those who were older at the time of leaving home. Among the female lives in the Sandwich Islands, we find eleven deaths between the ages of twenty-five and thirty-nine inclusive, while the tabular mortality calls for a fraction over six.

IMBECILE CHILDREN IN THE METROPOLIS.—We learn that, in consequence of a committee of the managers of the metropolitan district having a short time since made a report in favour of the imbecile children of the district being kept separate from the adult imbeciles, and placed in one asylum, it has now been determined to appropriate the asylum at Hampstead for this class of cases—arrangements being made for the reception of 110 male and 120 female children.

THE WARMTH OF CLOTHING.—Dr. Von Pettenkofer, in a careful study of this subject recently published, has pointed out that the permeability of stuffs to air is a condition of their warmth. Of equal surfaces of the following materials, he found that they were permeated by the following relative quantities of air, the most porous, flannel, such as is used ordinarily for clothing, being taken at 100:—Flannel, 100; linen of medium fineness, 58; silk, 40; buckskin, 58; tanned leather, 1; chamois leather, 51. Hence, if the warmth of clothing depend upon the degree in which it keeps out the air from our bodies, then glove-kid must be 100 times warmer than flannel, which everyone knows is not the fact.

The whole question, then, is resolved into that of ventilation. If several layers of the same material be placed together, and the air be allowed to permeate through them, the ventilation through the second layer is not much less than through the first, since the meshes of the two form a system of continuous tubes of uniform diameter, and the rapidity of the movement of the air through these is affected merely by the resulting friction. Through our clothing, then, there passes a stream of air, the amount of which, as in ventilation, depends upon the size of the meshes, upon the difference of temperature between the external and internal atmosphere, and upon the velocity of the surrounding air. Our clothing, then, is required, not to prevent the admission of the air, but to regulate the same so that our nervous system shall be sensible of no movement in the air. Further, our clothes, at the same time, regulate the temperature of the contained air, as it passes through them, so that the temperature of the air between the clothing and the surface of our body averages 84° to 86° Fahr.

The hygroscopic property of different materials used for clothing essentially modifies their functions. This property varies with the different materials; wool, for instance, takes up more water than linen, while the latter takes up and gives off its watery contents more rapidly than the former. The more the air is displaced by water from the clothes, the less will be their power of retaining the heat; in other words, they conduct the heat more readily, and hence we are quickly chilled by wet garments.

M. VILLEMIN has been elected a member of the Academy of Medicine in Paris, in the section of Medical Pathology. He is well known as having been one of the first to make experiments on the inoculability of tubercle.

PRESERVATION OF MEAT.—M. Poggiale described to the Academy of Medicine, at a recent meeting, the process followed by M. Tellier, in his establishment at Auteuil, near Paris, for the preservation of meat. The vessels or chambers in which the meat is enclosed are kept cool by the alternate vaporisation and condensation of methylic ether. Specimens of meat and game that had been kept in this way for weeks were examined, and found to be in good preservation. The game, however, had lost somewhat of its flavour.

THE WRITING OF ATAXIC PATIENTS.—At a recent meeting of the Biological Society of Paris, M. Onimus showed specimens of the handwriting of ataxic patients. They write in the same way as they walk, their writing presenting the characteristic irregularity and jerky abruptness. The letters are not rounded, the a's and o's being nothing but straight lines; whilst others have undefined terminations, such as the q's and the p's. At a more advanced stage, just as the foot strikes the ground with violence, so the pen leans so heavily on the paper as to perforate it. Therefore, ataxic patients only use pencils.

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MISCELLANEOUS.

| NAME. | TITLE. | OFFICE. | INSTITUTION OR PLACE. |
|------------------------|------------------|--|--|
| Davey, Richard G. . . | M.R.C.S. Eng. | Assistant Visiting Surgeon | Shorncliffe, under Contagious Dis- eases Acts, Women. |
| Davey, Richard S. . . | M.D. | Assistant Visiting Surgeon | Shorncliffe, under Contagious Dis- eases Acts, Women. |
| Dodd, William H. . . | L.K.Q.C.P. Irel. | Medical Attendant | Royal Irish Constabulary, Killor- glin. |
| Evans, Nicholl . . . | M.D. | Certifying Factory Surgeon | Royal Small Arms' Factory, En- field. |
| Jones, Henry | L.R.C.P. Ed. | Medical Officer | Wynnstay and Waterloo Collieries, near Ruabon. |
| Moore, John | M.D. | Surgeon | County Antrim Prison. |
| Oldman, Charles E. . | M.B. | Medical Officer | Spalding District, Great Northern Railway. |
| Wilders, John St. S. . | M.R.C.S. Eng. | Joint Professor of Medical Jurisprudence | Queen's College, Birmingham. |

HOSPITALS, ETC.

| NAME. | TITLE. | OFFICE. | INSTITUTION. |
|---------------------------|---------------|-----------------------------|-----------------------------------|
| Cheyne, William R. . . . | M.R.C.S. Eng. | Surgical Registrar . . . | Westminster Hospital. |
| Harbison, Alexander . . . | M.D. | Assistant Medical Officer . | County Lunatic Asylum, Lancaster. |
| Richards, Edwin | M.B. | Physician | General Hospital, Birmingham. |

RECORD OF VACANCIES

HOSPITALS, ETC.

| INSTITUTION. | OFFICE. | SALARY PER ANNUM, TERMS, ETC. |
|---|---|--|
| | | £ s. d. |
| Bristol General Hospital | Physician | — |
| Bury Dispensary | House Surgeon | 100 0 0 furnished apartments, &c. |
| Cumberland Infirmary, Carlisle | House Surgeon | 100 0 0 furnished apartments, board, &c. |
| Bootle Borough Hospital | House Surgeon | 80 0 0 board, lodging, &c. |
| Staffordshire Lunatic Asylum | Medical Superintendent | 450 0 0 board and lodging. |
| Lincoln County Hospital | House Surgeon and Apothecary | 100 0 0 board and lodging. |
| St. George and St. James Dispensary, King Street, Regent Street. | Accoucheur | — |
| Wolverhampton and Staffordshire General Hospital | House Surgeon | 100 0 0 board, furnished apartments, &c. |
| Royal Maternity Hospital, Edinburgh | House Surgeon | — |
| Leicestershire and Rutlandshire Lunatic Asylum | Assistant Medical Officer | 100 0 0 board and lodging. |
| Queen's Hospital, Birmingham | Pathologist | — |
| Cheltenham General Hospital and Dispensary | Medical Officer Branch Dispensary | Honorary. |
| Warneford Hospital, Leamington | House Surgeon | 80 0 0 board, lodging, &c. |
| General Infirmary, Leeds | House Physician | 100 0 0 board, residence, &c. |
| St. Thomas's Hospital | House Surgeon | 100 0 0 board, residence, &c. |
| Nottingham County and Borough Lunatic Asylum | Resident Assistant Physician | 100 0 0 furnished rooms and commons. |
| Metropolitan Asylum District Asylum for Imbeciles, Caterham | Assistant Medical Officer | 100 0 0 board, lodging, &c. |
| General Hospital, Birmingham | Assistant Medical Officer | 150 0 0 furnished apartments and board. |
| London Hospital | Resident Medical Officer | 100 0 0 board and residence. * |
| | Physician | — |

POOR LAW AND SANITARY SERVICE.

| UNION, DISTRICT, ETC. | OFFICE. | SALARY PER ANNUM, TERMS, ETC. | AREA. | POPULATION. |
|--|--|-------------------------------|--------|-------------|
| | | £ s. d. | | |
| Waterford Union, Ullid Dispensary District | Medical Officer | 100 0 0 and fees | 19,208 | 4,792 |
| Lunesdale Union { Workhouse } | Medical Officer | { 11 0 0 } | — | 3,000 |
| { No. 1 District } | | { 49 0 0 and fees } | 40,903 | 3,300 |
| Croom Union, Adare Dispensary District | Med. Off., P. V. & Reg. of Births, &c. | 120 0 0 and fees | 25,318 | 7,398 |
| Kilchrenan and Dalavich, Argyleshire | Parochial Med. Off. | — | — | — |
| Nenagh Union, Silvermines Dispensary District | Medical Officer | 100 0 0 | 30,739 | 5,771 |
| *Donegal Union, Pettigo Dispensary District | Med. Off., P. V. & Reg. of Births, &c. | 60 0 0 and fees | 30,007 | 4,077 |
| *Irvinestown Union, Clonelly Dispensary District | Med. Off., P. V. & Reg. of Births, &c. | 60 0 0 and fees | 7,957 | 2,287 |
| Torrington Union, Winkleigh District | Medical Officer & P. V. | 17 18 0 and fees | 91,118 | 1,402 |
| Roath Urban Sanitary District | Med. Off. of Health | 50 0 0 | — | 9,000 |
| Windhill Urban Sanitary District | Med. Off. of Health | 35 0 0 for one year | — | 5,783 |
| Dewsbury Union, Gomersal District | Medical Officer | 15 0 0 | 2,200 | 6,836 |
| St. Saviour Union, No. 9 District | Medical Officer | 130 0 0 | 624 | 82,220 |

* Held together.

MISCELLANEOUS.

| INSTITUTION OR PLACE. | OFFICE. | SALARY PER ANNUM, ETC. |
|---|---|---|
| | | £ s. d. |
| Royal Society of Musicians | Aural Surgeon | — |
| School for the Indigent Blind | Consulting Physician | — |
| Oxfordshire | Public Analyst | — |
| St. Saviour, Southwark | Public Analyst | — |
| University of Otago | Professor of Anatomy and Physiology | 600 0 0 and class fees, and allowance for passage-money and outfit. |

The London Medical Record.

WEDNESDAY, APRIL 22, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

SPIEGELBERG ON EXUDATIONS IN THE NEIGHBOURHOOD OF THE FEMALE GENITAL TRACT.*

Professor Spiegelberg states that further experience has justified his former assertion that these exudations are the most important affections with which one has to deal in diseases of women. A knowledge of this complaint is entirely of modern date, and, thanks to French authors, we are now in a position to take a fair survey of it. Already there exists two opposing doctrines. One maintained especially by Bernutz and Goupil, is that the peritoneum covering the female pelvic viscera and the neighbouring pouches and folds is the more dominant factor, and that the disease is a pelvi-peritonitis; the other is, that the disease has its origin in the cellular tissue in which the genital tract is situated, and which forms the parenchyma of the broad ligament; and that a phlegmon of the pelvic cavity is the chief cause of these exudative swellings and nodules. Authors are not yet unanimous whether perimetritis or parametritis is the more frequent, and in some cases the distinction is exceedingly difficult. It is a wide field of contention amongst writers, and this arising principally from want of clearness in the anatomical representations, and from imperfect knowledge of the relations of the serous membrane to the genital organs and to the pelvic fascia, and of the latter to the uterus and vagina. Dr. Spiegelberg relates much that is already well known, for the purpose of making a few remarks on their connections, &c., which, he considers, will have some influence on the etiology of this disease.

There are two plates: one a modified copy of Kohlrausch's vertical section of the pelvis and its organs; the other a transverse section, showing the vessels on the posterior surface of the uterus and cervix with the rectum and half of the peritoneum removed. He gives a brief anatomical sketch, and by aid of these plates attracts particular attention to the great amount of loose areolar tissue beneath the peritoneum at the point of its reflection from the anterior surface of the uterus (opposite the internal os), and where it covers the bladder. Between the bladder and cervix and upper portion of the vagina, it diminishes considerably. This tissue is exceedingly vascular, and rich in lymphatics. On the posterior surface of the uterus, the serous membrane, instead of descending in a direct line, opposite the middle of the neck, is separated from it by a bulging mass of cellular tissue; thence it is reflected along the hinder part of the vagina, and up the anterior surface of the

rectum, being for a space of one or two centimètres below this mass, in very close contact with the vagina. By this arrangement, a retro-uterine as well as a retro-cervical phlegmon becomes possible.

Laterally, the peritoneum, about the middle of the uterus, suddenly quits it, being reflected over the broad ligaments, whose roof it forms, leaving free a triangular space with its apex pointing upwards, full of loose areolar tissue. Thence the serous membrane spreads upwards over the sides of the pelvis, and over the iliac fossa. Between the peritoneum and the recto-vesical fascia there is a large quantity of cellular tissue and vessels. Beneath the recto-vesical fascia is the ischio-rectal fossa, containing vessels, a large amount of fat, and areolar tissue.

Luschka, from their relations, has named these three cavities, from above downwards, the *cavum pelvis peritoneale*, the *cavum pelvis subperitoneale*, and the *cavum pelvis subcutaneum* (ischio-rectal fossa). Of these cavities, the subperitoneal is the most important, as it contains not only the trunks of vessels, but also venous plexuses, besides abundance of veins and lymphatics, whose roots are embedded in the uterus. It is here that the ante- and retrocervical subperitoneal tissues become united. The cervix is enveloped in cellular tissue, gradually diminishing in quantity from above downwards. This is particularly important:—1. Because this tissue is intimately connected with the parenchyma of the neck, and in a measure forms its capsule; 2. Because it not only conducts blood-vessels and lymphatics to and from the tissue of the cervix, but of itself represents a cavernous structure (Rouget); 3. Because it takes part in all irritations and tumefactions of the cervix. In lesions of the cervix, on account of the thinness of the cervical walls, the cellular tissue easily becomes affected. The slightest lesion may set up inflammatory swellings; and, from its very construction, the tissue is an extremely favourable place for the reception and spread of septic matter by the blood-vessels and lymphatics.

Virchow (*Archiv*, no. xxiii.) introduced the name of parametritis to denote inflammation of the cellular tissue surrounding the lower portion of the uterus and the vaginal substructure. This word has later come to mean inflammation, not only of the parenchyma of the broad ligaments, but also of the entire pelvic fascia (Matthews Duncan), and hence has arisen some confusion.

The pathological importance of the pelvic fascia in the different situations, is very various. Dr. Spiegelberg proposes to give the name 'parametranal' to that layer, copiously supplied with blood-vessels and lymphatics, which surrounds the lower segment of the uterus and the base of the vagina for about two centimètres in width. Its inflammatory infiltration and subsequent induration would be parametritis; but, in order to prevent mistakes, it would be better called 'parametranal inflammation'—preserving the French nomenclature for inflammation of the parenchyma of the broad ligament and the pelvic fascia, viz., 'phlegmon of the broad ligament,' and 'phlegmon of the pelvic fascia.'

From this brief sketch, it is easily seen that intra-peritoneal exudation must very rarely occur in front, hardly ever laterally, but invariably behind in Douglas' pouch, consequently retro-uterine as well as retro-vaginal. As in the commencement all peritoneal exudations are fluid, they flow as a matter of course downwards, collecting at the bottom of Douglas's pouch, which is the most dependent portion of the

* *Sammlung Klinischer Vorträge*, no. 71, 1874.

abdominal serous membrane. They only appear as tumours, when encysted through gluing together of the intestine and pelvic viscera with the parietes by lymph. The process is generally gradual, but in some instances very rapid. Not a few of these cases are diagnosed as retro-uterine hæmatoceles. The contour of the swellings is always smooth and uniformly arched. The tumour is lowest at its centre, sometimes reaching down as far as the external os, especially in women who have borne children, in whom Douglas's pouch extends lower down. Laterally, it never touches the sides of the pelvis, but approaches nearer to them from below upwards. Its border is ovoid. The uterus is pushed forwards and upwards to an extent depending on the size of Douglas's pouch and the amount of fluid effused.

An intraperitoneal exudation has not a retro-uterine position except when it collects in occasional hollows, previously formed by false membranes and adhesions, either between the bladder and uterus, or laterally between it, the Fallopian tubes, and ovaries. Adherent loops of intestines may simulate tumours. The high situation of these tumours, and their being placed permanently laterally and in the posterior part of the *cavum peritoneale*, secures their correct diagnosis; still there are cases in which it is exceedingly difficult to distinguish them from phlegmonous nodules.

Professor Spiegelberg lays great stress on the fact that 'parametranal phlegmon forms a tumour from its very first commencement,' from being surrounded by a layer of cellular tissue. Its consistency varies; at first it is boggy, then fluctuating; later on, fixed, hard, knotty, and cord-like. The swelling may be on any side of the cervix; it is rarely large in front, from the small amount of areolar tissue between the bladder and neck, but may extend upwards along the abdominal walls for some distance, presenting a board-like structure, with a sharp well-defined border closely attached to the abdominal integuments, reaching to various heights in the inguinal region, and losing itself in the iliac fossa. It may be situated posteriorly, forming a retro-cervical parametritis, and is frequently mistaken for an intraperitoneal exudation, with which it has a great tendency to combine; it is distinguished by its diffuse border gradually emerging into the *parenchyma* of the broad ligament, and its marked retro-vaginal position, pushing the cervix forwards and upwards. As a rule, parametranal exudations are situated laterally. If they be of large size they extend into the broad ligament, so that a phlegmon of the latter may be a continuation of a parametranal inflammation. Still, phlegmon of the broad ligament may be primary, and of various sizes and positions, implicating perhaps the whole of the pelvic cellular tissue. These nodular exudations project downwards, shortening the contiguous portion of the vagina, and can be only felt through the abdominal walls when very large. Their contour is irregular, lumpy, gradually passing into healthy tissue and, as a rule, fixing the uterus to the pelvis.

As previously stated, Dr. Spiegelberg considers the pathological importance of the parametranal tissue the greater; and in studying the etiology of the affection, the truth of this assertion is very apparent. Any injury to the lower segment of the uterus and upper portion of the vagina, however brought about, may set up inflammation of the tissue. It is no accidental coincidence, as no gynecological affection is so frequent, not only as the result of child-bed,

but also from any lesion. The limits of the disease are entirely dependent upon the idiosyncrasy of the patients, and beyond the control of art. Septic parametranal phlegmon, and even septicæmia have followed the most trivial wounds. Its spontaneous origin from so called internal causes cannot, Spiegelberg thinks, be denied. Primary phlegmon of the broad ligaments chiefly originates spontaneously, proceeding from tumefaction of the membrane surrounding the situs of the ovary through some irritation of that organ, or from some small menstrual hæmorrhage into the broad ligament. Now and then they take their origin for external injuries.

He believes that pelvic peritonitis originates occasionally as a sequence of paracervical inflammation; from contusions and lacerations of old standing, false membrane, the results of a previous confinement; but generally from an endometritis and salpingitis, or from some menstrual disturbance. In the former it is principally the result of a gonorrhœal inflammation, in the latter it comes through the retention of some small clots in the above organs, causing extravasations into the peritoneal cavity, and on the surfaces of the Fallopian tubes and ovaries.

He sums up by saying: 'Parametranal nodules proceed from some pathological condition of the lower section of the internal genital organs.' Phlegmon of the broad ligaments follows parametranal phlegmon, or springs from the parovarian membrane. Pelvipеритонitic exudations accompany affections of the uterus and the Fallopian tubes, particularly of its internal surface; the latter are less frequent than the former and are most generally secondary; they never progress so insiduously as inflammations of the cellular tissue tend to do. Only at an early date, by careful examination, can the course of the development of the disease be learned. Frequently enough, this knowledge is concealed. The history of parametranal and periuterine inflammation will long be a fertile field of clinical, as well as of anatomical and gynecological observation.'

W. C. GRIGG, M.D.

CHARCOT AND OTHERS ON AUDITORY VERTIGO (MÉNIÈRE'S DISEASE).

Several important articles have recently appeared on what is variously called 'auditory vertigo,' 'vertigo ab aure læsâ,' or from its discoverer, Ménière's disease; the most recent and one of the most able is by Charcot. This physician's great knowledge of nervous diseases and remarkable power of original research, enable him to give any such subject wide and yet precise bearings. Charcot remarks that, in spite of recent papers on the subject (Knapp and Duplay), the disease is not so generally known as it should be. He shows that the symptoms of Ménière's disease are important not only for the aural surgeon, but for all practising medical men. For those specially interested in nervous disease, a thorough knowledge of them and of their relations to other symptoms of disease of the nervous system is essential. We give reference to Charcot's paper and to some others in the subjoined footnote.*

* *Le Progrès Médical*, Jan. 24 and 31, 1874, 'De la Maladie de Ménière.' Knapp's paper (to be especially referred to in the above article), 'A Clinical Analysis of the Inflammatory Affections of the Inner Ear,' and a paper by Gustav Brunner, of Zürich, 'On Vertigo occurring in Affections of the Ear (Auditory Vertigo),' are to be found in the

If a patient have an attack of giddiness, with vomiting, especially if his vomit contain bile, it frequently happens that a superficial view is taken of his case, and that an associated aural trouble is carelessly overlooked or disregarded. Charcot says that auditory vertigo may be erroneously put down to apoplectic cerebral congestion, to *petit mal*, but that it is most often attributed to gastric disorder. Indeed, Trousseau says that vertigo 'ab aure læsâ' greatly resembles vertigo 'a stomacho læso.' In this country auditory vertigo is very often, we believe, ascribed to affection of the liver; there being, however, no very good reason for this diagnosis, mostly, indeed, only the inconclusive evidence in favour of it that bile is brought up; but so it is in all urgent vomitings, however caused. Whatever view we may take of the cause of a paroxysmal vertigo, nothing justifies us in neglecting investigations for aural trouble or in ignoring them when found. It would be as absurd to ignore the hemiopia and other visual troubles preceding the headache and vomiting of *migraine*. This disease, often passing under the unfortunate name of 'sick-headache,' by the way, is now, thanks in this country especially to Anstie, Latham, and Living, shown to be really a nervous affection, and not a mere stomach-and-liver affair, and thus not one requiring remedies exclusively addressed to gastric and hepatic derangement.

The case which Charcot relates is a very important and a very remarkable example of Ménière's disease. But before we speak of it, we may give a brief account of some of the symptoms of that affection.

The patient has, usually, a sudden attack of giddiness, accompanied by reeling gait, great pallor of the face, free perspiration, feeling of fainting, or even actual loss of consciousness; he feels sick or actually vomits. At the same time, there is usually a great noise in one or in both ears; it may be that the patient's hearing has been good before, and that he is afterwards deaf, or it may be that there has for long been some kind of aural trouble. We speak only of the prominent symptoms, of the giddiness, the reeling, and the affection of hearing. The symptom vomiting, being obtrusive, cannot be disregarded nor underrated, and therefore need not be commented on; there may, however, be only nausea.

The important matter is to show how the aural trouble is associated with the vertigo and reeling. We use the very general expression 'aural trouble' because, as we shall see, the kind of affection of the ear varies very much, although possibly in the production of auditory vertigo the immediate cause is some affection of the labyrinth.

For our purpose, the labyrinth may be taken to consist of two functional parts, the cochlea and the three semicircular canals; these two parts have corresponding divisions of the auditory nerve. It seems to be agreed that the cochlear division is for the perception of musical sounds. As

to the function of the three semicircular canals, or, speaking strictly, of their contents, there is a difference of opinion. Helmholtz's view is that they serve in the appreciation of ordinary sounds. The view taken by Goltz is that, 'being subservient to the maintenance of poise, they are, as it were, the organ of the sense of equilibrium of the head, and thereby of the whole body.' (Knapp, op. cit., p. 224.) There are certainly facts supplied by experiments on animals, the well-known experiments of Flourens, which show that the canals have something to do with the regulation of movements, chiefly those of the head. The following quotation from Vulpian's *Physiology of the Nervous System* tells us not only that injury of them produces disorderly movement, but that each canal—judging from the fact that a particular disorderly movement follows lesion of each—has some special duty, serves to regulate some particular group of movements of the head, and thus indirectly to regulate some group of movements of the whole body in locomotion.

'Two of the semicircular canals are vertical, the third is horizontal. In this pigeon, the canals of which have been carefully exposed, I break the horizontal canal on one side, then that of the other side. The animal gives obvious signs of pain, and his head moves violently from right to left and from left to right, following a horizontal line; at the same time the eyeballs are agitated, and you can observe further that the animal turns itself round upon its vertical axis. In this other pigeon, I cut the inferior vertical canal on each side, and I determine movements of the head from above downwards as impetuous as the preceding ones; then the animal throws its head backwards; it shows, as you see, a tendency to fall backwards. I cut now the upper vertical canal on each side on this third pigeon. The vertical movements of the head immediately come on; they are very violent and analogous to the preceding ones. Nevertheless you see that the animal tends to fall forwards, and that to stop these movements, it ends by leaning the top of its head forwards on the ground.'

It is right to mention that Dr. Brown-Séquard has said, 'I have ascertained that the phenomena observed in experiments on these canals, do not depend on the section of these canals, as this operation may not cause these phenomena, but that they are the results of irritation of the auditory nerve, from the dragging on it by the membranous semicircular canals at the time when we divide them.'

We must bear in mind the differing positions of the canals in order to understand Goltz's hypothesis. Goltz thinks that the terminations of the nerves in the canals are in health excitable by pressure or tension, as the tactile nerves of the skin are. The excitation is by the pressure of fluid, which pressure, according to him, varies, for physical reasons, with the position of the head. The central nervous system, at any given time, receives information as to the position of the head from the nervous contents of that canal, which being then most dependent is consequently most excited by pressure. If such be the physiology of the canals, the interpretation of the results of damage of them follows easily. When one or more of these canals is damaged, the central nervous system is wrongly informed as to the position of the head. We may suppose that this results either because in sudden lesion an exaggerated impression is transmitted to the brain from the over-excited canal, or because as a consequence of very

Archives of Ophthalmology and Otology, vol. ii. no. 1. In the *Archives Générales de Médecine*, June 1, 1872, appears a review of these papers by Dr. Simon Duplay, who gives a very clear and succinct account of Ménière's disease. A brief account of Ménière's disease is given by Dr. Ramskill in his article 'Vertigo' in *Reynold's System of Medicine*, vol. ii. It is described by Trousseau in his lecture, 'Vertigo a Stomacho læso' (New Sydenham Society's *Translations*, vol. iii. p. 549.) In the *Guy's Hospital Reports* for 1873-4, there are papers on the subject by Dr. Wilks and by Mr. Hinton. The Reporter has given an account of the affection (chiefly compiled from Knapp and Trötsch) in the *Medical Times and Gazette*, Aug. 17, 1872.

extensive injury of a canal its nervous contents cannot be excited at all, and thus there is no impression for transmission. In consequence of the centre over-acting on wrong information, or underacting because it is without information, certain factors in the locomotor movements will be out of harmony with the rest. Thus there will be reeling. There is, however, in slight cases, not reeling, but simply vertigo. However, the reasoning is the same; vertigo (as is plainly seen in the study of cases of palsy of ocular muscles) is a motor symptom; it is, the Reporter believes, a rudimentary or incipient disorder of co-ordination of locomotive movements; it is frequently, however, spoken of as a cause of reeling. The disturbances of equilibrium are, Goltz thinks, temporary, when the semicircular canals are injured but not one side. Goltz's hypothesis at first glance appears to refer only to movements of the head. He shows, however, that the movements of the body are dependent on, perhaps we may say 'led by,' those of the head. This view seems to us to be supported by the effect of section of the muscles of the back of the neck in dogs (in the operation to expose the occipito-atloid space); the result is, Magendie and Bernard state, disorderly movement like that of drunkenness. Bernard* finds, too, that although section of the muscles of the back of the neck of pigeons does not produce disorderly walking, it destroys their chief mode of locomotion; they cannot fly.

These last-mentioned facts have a still wider bearing. The auditory nerve, as Lockhart Clarke has long since pointed out, sends a large division to the cerebellum. According to Meynert, the whole of it is lost in the cerebellum. It is a fair speculation, then, that the nervous centres of which we have metaphorically spoken as being wrongly informed, in cases of lesions in the semicircular canals, lie in the cerebellum, or, in other words, that the divisions of the auditory nerves in the canals are afferent to centres in the cerebellum for certain movements of the head, for those which take the lead in and regulate locomotion. This would accord with the generally accepted view that the cerebellum is the organ for the co-ordination of movements of locomotion; it matters not whether the cerebellum be disturbed from actual disease in it, or be disturbed by irritation propagated to it from without. The word co-ordination is, however, not a safe one to use, for there are still some who speak of a 'faculty of co-ordination,' and even of a centre for it. The reporter believes that the cerebellum is only to be considered the organ of co-ordination of movements of locomotion, in that it represents more especially the locomotive movements of the spine (head and trunk). The disorder of co-ordination of movements of locomotion, actual as in reeling, or rudimentary as in vertigo, from disease of this centre, is owing, he considers, to paresis of the spinal muscles. Hence the significance of the effect of section of the muscles of the back of the neck, in effect a paralysis of them, in the above-mentioned experiments of Magendie and Bernard. The seemingly erratic action of the legs in some cases of cerebellar disease, is for the preservation of balance consequent on the spinal paresis; the patients keep their legs widely apart, and, so to speak, their legs run after the trunk to 'under-pin' it in its various over-inclinings from side to side and from back to front.

The disorderly walk which occurs early in some cases of disease of the cerebellum is a reel; it is a walk like that of a drunken man; so also is, so far as one can judge by reports of patients and observation of a few cases, the walking of patients during the paroxysms of Ménière's disease. The speculation is that the last link in the morbid chain in Ménière's disease is disorder of the centres in the cerebellum, which especially empower the muscles of the neck and trunk. [The only statement of the hypothesis, that the vertigo and reeling in cases of cerebellar disease depend on paresis of the spinal muscles, which I can find, is contained in Niemeyer, who quotes Immerman (*Humphreys and Hackley's Trans.* vol. ii. p. 188 and p. 244). At first glance it seems an inadequate explanation of the disorderly co-ordination of reeling. But we must take note of secondary effects of paralysis; these are best seen in cases of palsy of oculo-motor nerves. There no doubt are, in cases of spinal paresis, indirect results of this paresis analogous to the 'erroneous projection' and 'secondary deviation' in cases of paralysis of the ocular nerves.—*Rep.*]

So far we have said nothing of the associated deafness. This, as Knapp urges, shows that the lesion in cases of Ménière's disease is not limited to the semicircular canals. He brings forward special evidence on this matter. He points out that not only is there partial deafness, but that there is deafness for certain musical tones, which, borrowing the form of an expression of ophthalmologists, he describes as 'a contraction or limitation of the field of audition.' This is, he thinks, clear evidence that the cochlea itself is involved also. Besides the positive value of this conclusion, it is negatively valuable as showing, to use Knapp's words, that Ménière's disease 'is neither an affection of the trunks of the auditory nerves, nor of their centre in the brain.' (Op. cit. p. 277.)

J. HUGHLINGS JACKSON, M.D.
(To be continued.) — 7 p. 252

FORENSIC OPHTHALMOLOGY.

ON INJURIES OF THE EYE IN THEIR MEDICO-LEGAL RELATIONS. BY PROFESSOR ARLT, OF VIENNA.*

(Continued from page 226.)

4. *Bursting of the Globe.*—Whether bursting of the cornea can occur as a result of sudden compression, is doubtful. In the few cases where this is alleged to have been observed, the suspicion is not excluded, that the cornea was struck by a more or less sharp corner or edge of an instrument.

Cases of bursting of the sclerotic are but rare. The rent extends, without exception, through the ciliary process. Of bursting of the posterior part of the sclerotic, first, indeed, detected after enucleation of the eye, one case only has been recorded by Bowman (White Cooper, *On Wounds and Injuries of the Eye*, 1859).

Diagnosis.—The sclerotic rent is linear or somewhat curved, more or less indented, from nearly a quarter of an inch to half an inch long. It generally rises parallel with the edge of the cornea, at a distance of about $\frac{3}{40}$ to $\frac{1}{5}$ of an inch from the free edge. In one case only (Schröter, *Klinische*

* *Leçons sur la Physiologie et la Pathologie du Système Nerveux*, vol. i. p. 497.

* *Wiener Medizinische Wochenschrift*, March 28 and April 4.

Monatsblatt, 1866) the rent formed a flap. (A man fell on an anvil, a corner of which struck him near the inner angle of the left eye. There was first found a rent in the sclerotic, passing horizontally outwards several lines from the outer edge of the cornea. Four days later, the chemosis of the cornea having diminished, a second rent was seen extending upwards and inwards from the outer end of the first, so as to form an acute-angled flap; and five days afterwards a third rent was found, extending a few lines inwards from the inner or upper edge of the cornea. The reduction of the inflammation was followed by a shrinking of the cornea; the lens was also dislocated, probably at the time of the fall.) If the rent run near the cornea, the conjunctiva is generally torn, and then the lens may entirely, or in great part, escape, or a portion of the iris, of the lens-capsule, or of the vitreous body may hang out of the wound.

If the conjunctiva remain sound, a sac is formed, in which blood, the fluid of the aqueous chamber, iris, lens, and vitreous body may be found; and these contents may more or less conceal the rent. The weakness of the globe, which may even remain after the union of the wound, the drawing forwards of a portion of iris towards the part suspected of being the seat of injury, and perhaps the evidence of changes in the lens, if the chamber be not full of blood, may lead to a diagnosis, if any doubt remain after careful inspection of the cornea, or if there be general chemosis. The presence of the lens under the conjunctiva is shown, independently of its size and shape, after the absorption of the blood, by the complete reflection of light at the edge of the capsule, after cataractous opacity has commenced in the lens. In time, the lens may in some cases be absorbed, leaving only some fatty and saline *débris*.

These ruptures always indicate that a blunt instrument has been applied with great force and rapidity. There appears to be no indication of any special predisposition; the injuries are almost confined to adults, and are most frequent in the second half of life.

Prognosis.—According to the hitherto recorded observations, it appears as if the force of the blow is spent in the laceration of the ciliary process and the sclerotic; the retina and choroid (behind the ora serrata) are but little if at all affected. The circumstance that these ruptures mostly occur inwards, or upwards and inwards, rarely upwards and outwards, and very rarely downwards, indicates that the eye has been struck in its anterior circumference, but far from the cornea.

The traumatic reaction after the injury does not readily reach a high degree. The danger lies principally in extensive injury of the vitreous body, which may lead to subchoroid hæmorrhage, and in subsequent irritation of the iris, either through its becoming pinched in the cicatrix, or through the pressure of the lens on the iris and ciliary processes. If much of the vitreous body escape into the wound, either violent reaction on account of the considerable collapse of the globe, or severe choroidal hæmorrhage, is to be apprehended: or there is danger of the occurrence of separation of the retina gradually manifesting itself after weeks or months.

The filling of the anterior chamber with blood is a matter of much less importance. Numerous cases are recorded, where, after total escape of the lens, persons have been able to see, with the aid of cataract-glasses, as well as those who have been operated on

for cataract, and have remained for years in this condition.

Treatment.—The first indication is to prevent further discharge of the contents of the globe. During the first days the patient should lie on his back, cold should be applied, and both eyes kept closed; and he should as far as possible avoid every action tending to retard the flow of blood through the descending vena cava (such as coughing, straining at stool, &c.). If a large portion of vitreous body and of iris hang out of the wound, a part may be cut off in moderately quiet individuals; but this is not absolutely necessary. The exposed mass of vitreous body in a few days becomes opaque, constricted at the base, and is at last thrown off; the iris is fixed in the opening, and is gradually bridged over by exudation and conjunctiva, and levelled down. If this do not occur, it may be cut away. If the lens press on the iris or on the ciliary processes, an endeavour should be made to remove it.

If the conjunctiva be not torn, but only protruded in the form of a sac, the opening and emptying of the sac should be delayed until it appears (from the state of tension of the globe) that the rent in the sclerotic and uvea is closed. If panophthalmitis (filling of the interior of the blood with pus, and its protrusion) appear, the case can scarcely be prevented from going on to wasting of the bulb, though a compressive bandage may be of use. The severe pains can only be allayed and cut short, at first by the use of ice-cold applications, afterwards of lukewarm, with the aid of opiates or chloral-hydrate. At last, when the discharge of pus through the sclerotic is long delayed, a puncture at one or more of the most prominent points may be the only means of relieving the patient.

The worst cases are those in which, from dragging or strangulation of the iris, or its irritation by the pressure of the dislocated or swollen lens (with its capsule), or from a later effusion of blood into the vitreous space, a slow inflammation (with increase of pressure) is set up and continued in the uveal tract; in such cases, there is danger of sympathetic iridocyclitis of the second eye.

5. *Laceration of the Uveal Tract* (iris and choroid) is generally indicated by an effusion of blood into the aqueous chamber or into the vitreous body (*hæmophthalmus*).

Effusion of blood into the anterior chamber, in an eye that has not previously been inflamed (except in cases of scurvy and of intraocular tumours) always indicates concussion of the eye or a penetrating wound. Its source is generally the iris, rarely the ciliary processes or the posterior half of the eye. The blood may entirely fill the anterior chamber, or may be present in such small quantity (in the fold between the iris and the corneo-scleral border) that it can only be found after careful search. It generally lies below; but may be met with above or to the side, or between the fibres of the iris at the points where laceration has taken place. It can then be generally discovered only by concentrated light. In eyes previously healthy, especially in early age, the blood which has filled the whole chamber may be entirely absorbed in thirty-six hours. Some colouring matter, however, generally remains for a time, undergoing changes of colour, and appearing as a yellow or pale red covering, through which the iris, when not inflamed, can be distinctly seen.

6. *Effusion of the Blood into the Vitreous Body* after concussion with bursting of the choroid (or

after penetrating wounds not reaching the lens) produces, according to its amount and situation, disturbance of vision in different degrees, up to the point of being only able to distinguish between complete darkness and strong light. Large masses of blood in the vitreous body can of themselves absorb all light, and sometimes they even totally destroy the quantitative sensibility to light.

When ophthalmoscopic examination is prevented by effusion of blood into the anterior chamber, or by opacity of the lens, the means that has been employed since Von Gräfe to determine the functional capability of the retina in cataract, may be used for ascertaining whether we have to deal only with an abundant effusion of blood in the vitreous body, or also with elevation of the retina (by blood or serum between it and the choroid) or with laceration or concussion of the structure (commotio retinæ). 'If,' says Von Gräfe (*Archiv für Ophthalmologie*, vol. iii.), 'when the patient is examined with the lamp in a dark room, there exist a perfectly distinct perception of light, about as much as in mature cataract, and if this be nearly equally distinct in all directions, there may be an abundant circumscribed hæmorrhage in the vitreous body, but there is certainly no separation of the retina. If the quantitative faculty of vision be moderately impaired, and the appearance of light in the lower part of the field of vision somewhat more distinct than above, it must not even then be concluded that there is separation of the retina; a large amount of hæmorrhage in the vitreous body with sinking of the coagula may produce the impairment and inequality. If in such cases it be desired at an early period to determine whether there is reason to suspect separation of the retina, the patient is made to repeatedly move the eye rapidly upwards, so as to disturb the coagula in the vitreous body; and then we note whether the inequality in the perception of light is changed in any way. The patient may also be made to lie on one side for some time; and it may then be observed whether there is a corresponding change in the indistinct perception of light. If there be an enormous difference between the perception of light at the upper and lower parts, and especially if the perception be very remarkably diminished, a separation of the retina may be diagnosed. . . . Moreover, it must not be forgotten that separation of the retina may occur or increase at a later period, when the opacity of the vitreous body is diminishing. I will not deny that limited separation of the retina in hæmophthalmus may be overlooked in spite of the most careful examination of the perception of light (in consequence of the dispersion of light); and in many cases where there is at the same time extensive hæmorrhage in the vitreous body it may remain unknown; but a great advance in diagnosis and prognosis has been made by the examination of perception of light and homocentric illumination.

Prognosis.—Small quantities of extravasated blood in the vitreous body of themselves produce more or less marked impairment of the acuteness of vision. The patient complains of a dark cloud or flocculi floating before his eyes; and often (at first) white objects appear red.

Absorption takes place much more slowly than in the chambers; it may require five or six weeks. Movable *scotomata* very often remain for a long time, or even permanently. Whether a destructive defect of the field of vision (or fixed scotoma) or more or less limitation of the field of vision will remain,

depends partly on the situation and extent of the rupture of the choroid, partly on the immediate or subsequent changes in the retina (see sections 8 and 9).

As long as the blood collected in the chambers or in the vitreous body prevents sufficient examination of the eyes, the prognosis should be reserved, especially when the violence applied was great, or if the eye were previously not perfectly sound—*e.g.* if it were very myopic. The quantitative sensibility to light may be removed for two or three weeks by blood collected in the vitreous body, and the perception of light may yet return.

It must be observed that, after extensive hæmorrhage of traumatic origin, not only the aqueous humour, but also the episcleral connective tissue, shows a yellow tinge after some weeks.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

MARTIN-DAMOURETTE AND OTHERS ON THE PHYSIOLOGICAL ANTAGONISM OF POISONOUS SUBSTANCES.—Several memoirs on this subject have lately appeared in France and in Germany. For the following particulars we are indebted to a writer in the *Archives des Sciences* for March 15. (An account of the researches of MM. Rossbach and Fröhlich on the action of atropia and physostigma on the pupil and heart was given in the *London Medical Record* for December 17, 1873.)

M. Martin-Damourette has studied the physiological properties of eserine, the active substance of the Calabar bean (*Physostigma venenosum*), named also physostigmine and calabarine. Having made experiments on rabbits, birds and frogs, he thus sums up its properties as affecting motor organs.

1. It excites the muscles, and produces muscular convulsions, shown in fibrillar contractions, convulsive movements, contractions of the intestine, and lastly, pupillary contraction.
2. It excites the cerebro-spinal motor centres.
3. It diminishes (like curare, but less rapidly), the excitability of nerve-terminations in the muscles.

These three elementary properties appear differently according to the dose given, and especially according to the mode of administration. While a large dose of the poison quickly produces convulsions, paralysis of the phrenic nerves, and death by asphyxia, in warm-blooded animals, it is possible, by using divided doses (*refractées*), to destroy muscular contractility, without producing the nervous excitation, which, in the former case, caused death. These two actions M. Martin-Damourette regards as a sort of antagonism established between the two principal physiological properties of the substance; the muscular paresis being opposed to the death by nervous excitation. It is in this way that he is led to explain the success which some authors have said they met with in using the Calabar bean for treatment of tetanus. He insists on the necessity of using divided doses in the treatment of tetanus, in order to obtain muscular relaxation. 'Weak and gradually increasing doses of sulphate of eserine,' he says, 'are a certain means of developing this antagonism to advantage of neuro-paralytic effect, and hence results a tolerance of doses which are more than toxic, capable of relaxing the tetanised muscles.' In

the continuation of his memoir, M. Martin-Damourette seeks to prove that an analogous influence is brought into play, when (as Dr. Fraser shows) the toxic action of eserine is neutralised by a small dose of atropine. Atropine, in small doses, has thus neuro-paralytic properties capable of arresting the convulsive action of eserine.

One of the important properties of eserine is that of making the pupil contract, either when applied locally to the ocular globe, or when, through absorption, it penetrates into the aqueous humour. This property, often utilised in treating mydriasis produced by atropine, has received very various interpretations; some explaining the phenomena by paralysis of the sympathetic and the dilator of the pupil (M. Rosenthal, M. Bernstein-Dogiel); others (M. Grünhagen) by excitation of the terminations of the common oculo-motor in the sphincter of the iris; others, again, by a combined action of both these agents. This question has also occupied M. Martin-Damourette, and it has been one of the principal subjects of study by MM. Rossbach and Fröhlich (in a memoir named), who have limited their researches to the physiological action of physostigmine and of atropine on the iris and the heart.

Like MM. Rossbach and Fröhlich, M. Martin-Damourette remarks (a fact already pointed out by M. Grünhagen) that a slight excitation of the cervical sympathetic produces dilatation of the pupil contracted by eserine; the nerve is not then paralysed.

M. Martin-Damourette thinks also that the irritation of the third pair (which furnishes the ciliary nerves governing the contraction of the sphincter) is not the cause of myosis (a view which, on the other hand, MM. Fröhlich and Rossbach accept). The contraction of the pupil takes place even when the common ocular motor is paralysed by atropine or otherwise; whence M. Martin-Damourette concludes that eserine acts directly on the constrictor muscle of the pupil, as on the other muscles.

According to M. Köhler (in a recent memoir), the antagonism of Calabar bean and of atropine only exists in warm-blooded animals, and is not observable in the frog. It is the same with saponine, which has an antagonistic action to Calabar bean. In the frog, as M. Roher has also shown, the Calabar bean paralyses the accelerator fibres of movement of the heart, and does not act on the musculo-motor ganglia of that organ.

M. Köhler makes also a comparative study of various poisons which act on the heart and modify its rhythm in different ways. Analysing the action of these poisons, he seeks to demonstrate that the phenomenon of arrhythmia, studied by Heidenhain, is due to irritation of the muscles of the heart by blood containing an irritant poison, which brings on a momentary fatigue and relaxation, atony of the ventricular muscles.

According to this author, Calabar bean does not produce arrhythmia, because it leaves intact till death the cardiac muscles and ganglia, and it may even stop the arrhythmia produced by injections of saponine and of atropine. This interpretation of arrhythmia is different from the one adopted by Heidenhain.

We have next M. Luciani's researches made in the laboratory, and under the direction, of M. Ludwig. The author proposes to study, with the aid of the graphic method, the contractions of a frog's heart separated from the body. He gives a drawing of the registering apparatus used; it consisted of a transmission-manometer, connected with the heart,

which was filled with serum, and in which a determinate pressure was produced. A style connected with the manometer registered on a cylinder the oscillations of the mercury. The author used in his experiments (following the example of Dr. Bowditch, who has experimented in the same direction), a heart stopped in diastole by a ligature applied at the level of the sinus of the vena cava; he investigates the influence of a change of temperature, of pressure, ligature, &c., on the heart. Subjecting the organ to the influence of various poisons (muscarine, atropine, nicotine), he examines into the causes governing the periodic action of the heart. From a study of the curves obtained, and analysis of his numerous experiments, the author concludes, it cannot be admitted, as a large number of authors suppose (in particular Böhm, Schneideberg, Köhler, &c.) that there are in the heart different centres, some of which produce arrest of the heart, the others excitation of its movements. According to him, there is only one automatic centre, which can be modified in different ways by exterior and toxic agents.

ALEX. B. MACDOWALL.

COYNE ON THE STRUCTURE OF THE MUCOUS MEMBRANE OF THE LARYNX.—P. Coyne (*Archives de Physiologie*, vol. vi. p. 92) has arrived at the following conclusions upon this subject. The mucous membrane of the larynx is formed in a layer subjacent to the epithelium, by a reticulated tissue analogous to lymphatic tissue; it thus approaches the structure of the mucous membrane of the small intestine. Lymphatic organs, analogous to the closed sacs of the small intestine, exist in the superficial layers of the mucous membrane. The author is of opinion that the presence of these glands may account for the development of certain ulcerations in the larynx during fever, as in typhoid. On the free border of the inferior vocal cord, certain vascular, and probably nervous papillæ, are to be found. These papillæ are specially developed on the anterior half of the vocal cords. From the preparation of more than twenty-five human larynges, the author has satisfied himself that the submucous serous sac, admitted by Fournié, does not exist.

WILLIAM STIRLING, D.Sc., M.B.

RECENT PAPERS.

Absorption of Bone and Interstitial Bone-growth. By A. Kölliker. (*Verhandlungen der Physikal.-Medicin. Gesellschaft in Würzburg*, vol. vi. parts 1-2, 1874.)

Actions of Various Preparations of Ergot on the Heart. By Dr. M. J. Rossbach. (*Ibid.*)

The Structure and Movements of the Spermatic Filaments. By Dr. Th. Eimer. (*Ibid.* parts 3-4.)

A Supernumerary Vertebra and Malformed Pelvis. By Dr. F. Macari. (*Lo Sperimentale*, Feb. 1874.)

On the Innervation of the Inferior Choroid Plexus. By Dr. M. Benedikt. (*Virchow's Archiv*, vol. lix. nos. 3 and 4.)

On the Structure of Tendinous Tissue. By Dr. D. Stefanini. (*Giornale della R. Accademia di Medicina in Torino*, no. 3, 1874.)

Researches on the Absorption of Bone and on Giant Cells. By Dr. J. von Rustizky. (*Virchow's Archiv*, vol. lix. part 2.)

Remarks on the Os Femoris. By F. Merkel. (*Ibid.*)

Researches on the Respiratory Nerve-centres. By Dr. P. Rokitsansky. (*Medizinische Jahrbücher*, 1874, part 1.)

Arrest of the Intestinal Movements through the Splanchnic Nerve. By Dr. S. von Basch. (*Ibid.*)

PATHOLOGY.

STICH ON THE PATHOLOGY OF TUMOURS.—Dr. Edward Stich of Nürnberg (*Berliner Klinische Wochenschrift*, Nov. 23, 1873, *et seq.*) draws attention to the theory of origin of tumours from mechanical injuries, a subject which he considers somewhat neglected. He commences by briefly reviewing the well-known arguments for and against the constitutional origin of tumours, inclining himself to believe in their purely local origin. He draws attention to the fact that tumours are most common in parts most exposed to mechanical injuries, such as the natural orifices of the body, the narrowest parts of the alimentary canal, &c. He confesses that he has nothing new to add to a subject which has been already so extensively discussed, and which, until some further data are obtained, must still remain to some extent a matter of opinion.

The greater part of the paper is composed of four cases illustrative of the influence of local injuries in the production of tumours. The first is a case of sarcoma of the left occipito-atloid articulation, and of the neck of the fifth rib and the body of the fifth dorsal vertebra. The patient was a healthy blacksmith, aged twenty, who, in consequence of his chair being pulled from under him as a practical joke, fell backwards, striking his head and shoulders violently on the ground. At the time he was stunned, but soon recovered, and was able to walk home. The following day he was tolerably well, with the exception of some pain and stiffness about the neck. He could, however, bend his head backwards and forwards, and rotate it without much difficulty. From this time forwards he had frequent pains in the neck, and lost flesh and appetite. Five months after the accident, when he came under observation, the neck was found to be fixed stiffly, and a tumour could be distinctly felt in the suboccipital region, and another at the level of the fifth dorsal vertebra. These tumours increased rapidly, paralytic symptoms supervened, and he died about six months after the injury. The examination of the body after death showed two soft white sarcomatous tumours, one destroying the neck and head of the fifth rib and extending into the body of the fifth dorsal vertebra, and the other affecting the left lateral mass of the atlas and the left condyle of the occipital bone, extending in the base of the skull as far as the great wing of the sphenoid. The odontoid process was bare, and the ligaments were destroyed. In this case the author considers the primary injury to have been a fracture of the transverse process of the atlas and another of the fifth rib. The growth necessary for the repair of these injuries he believes to have been the starting-point of the tumours—the normal limit of activity being exceeded and a sarcoma produced instead of callus. A somewhat similar case is also recorded in which a sarcoma developed in the base of the skull of a boy twelve years of age, some time after a severe blow on the head. At the *post mortem* examination Dr. Stich found what he considered to be an old fracture of the small wing of the sphenoid. It is unfortunate that the only two cases of sarcoma following fracture that Dr. Stich is able to bring forward should have occurred after injuries, the nature of which was not ascertained at the time of the accident, especially as it is impossible not to look with suspicion on conclusions drawn from bones to a greater or less extent destroyed by a tumour.

The author suggests that the frequency of sarcomata in bones may be due to the liability to mechanical injury to which they are exposed by their rigidity. This suggestion would be of more value if he could bring any statistics to prove that those bones, and those parts of bones most exposed to injury, are the most frequent seats of sarcoma.

The two other cases contained in this paper furnish much clearer evidence of local origin of tumours. In one, a 'scirrhous cancer' developed in a scar left in the lower lip by the kick of a horse, and in the other a fibro-sarcoma, which ultimately reached the size of a foetal head, formed in the abdominal walls of a healthy woman aged thirty-four, directly consequent upon a blow from the horn of a cow.

In a second paper by the same author, we have an account of two interesting species of myxoma which have come under his observation. To one he gives the somewhat complicated name of 'myxolipoma sarcomatosum telangiectodes.' The tumour was situated on the front of the fore-arm in a man aged seventy-three years. It had existed for thirty-six years, and until a short time before had remained stationary at the size of a hazel-nut. It suddenly commenced to grow rapidly, and, at the time of operation, had reached the size of a foetal head. It was found deeply to implicate the muscles, rendering amputation necessary after a partial attempt at removal. On examination after removal the tumour was found to be composed partly of fat as in an ordinary lipoma, partly of the gelatinous basis and stellate cells of a pure myxoma, and partly of excessive vascular round-celled sarcoma tissue.

In the same paper the author records a case in which the left leg was amputated for a large myxoma, reaching from the ankle to the upper third. In both these cases, the author is of opinion that in its earliest stage the tumour was an ordinary lipoma.

MARCUS BECK.

COLOMIATTI ON EPITHELIOMA AFFECTING THE SYMPATHETIC NERVE.—Dr. V. F. Colomiatti describes (*Giornale della Reale Accademia di Medicina di Torino*, January 20, 1874) the *post mortem* appearances shown in a case of epithelioma of the cervix uteri in a woman aged forty. Almost the entire anterior lip of the os tincæ was destroyed, and there was thickening of the posterior lip with ulceration at the sides. The anterior wall of the body of the uterus contained a round tumour of the size of a small nut. The walls of the bladder showed numerous grey white spots, limited to the region of the trigone; and at this point there was thickening of the vesicovaginal septum. There was no ulceration of the mucous membrane of the bladder. The lymphatic glands lying along the vertebral column were much enlarged and hardened, as were also those in the iliac fossæ. The left suprarenal capsule was also large and hard; both it and the glands presented on section a grey white colour. The left semilunar ganglion was as large as a small French bean, and somewhat increased in consistence; the right semilunar ganglion and some other small ganglia were pressed together, and also felt rather hard.

On microscopic examination, the cervical portion of the uterus was found to be the seat of epithelial cancer. The tumour in the anterior wall contained nucleated fibro-cellular cells. On examining the portion of bladder lying nearest the ulcerated portion of the cervix uteri, it was found that the cancer-cells had infiltrated the connective tissue and had invaded

the bladder, among the muscular fibres of which they formed small nodules. The lymphatic glands and the left suprarenal capsule also contained epitheliomatous cells.

The semilunar ganglia were found to be infiltrated with cells of the same character as those of the uterus; they lay among the nervous fibres, and were readily distinguishable from the ganglion-cells. The cancer-cells surrounded the ganglion-cells in layers which compressed and atrophied the latter, reducing them to an indistinct mass of pigment-granules. The nerve-fibres were separated by the cancer-cells, and compressed. In some parts, where there were accumulations of the latter, the nerve-fibres had totally disappeared, the only remaining traces being some very fine fibres of connective tissue united in small fasciculi. In several parts, the cancer-cells formed nodules, and were pressed together so as to assume a polygonal form. Sometimes the cancer-cells only partially surrounded the nerve-fibre; and in other cases they were found within the sheath, having the appearance of being infiltrated. In some of the nerves, the sheath of connective tissue was found to be interrupted here and there, the points of interruption being filled with cancer-cells infiltrated into the sheath and forming small nodules. In some sections, the ganglionic cells were not affected, but the nerve-trunks had cancer-cells within and in the substance of the neurilemma. Some of the nerve-fibres in the uterus also contained cancer-cells within the sheath, sometimes surrounding the nerve-fibrils, sometimes infiltrated among them.

Dr. Colomiatti also describes, in *L'Indipendente* for January 5 and 15, the appearances presented in the pelvic viscera and nerves of a woman who had died of uterine cancer in the S. Luigi hospital.

The cervix uteri was destroyed, the vesico-vaginal septum perforated, and nearly the whole body of the uterus invaded by the disease. Epitheliomatous cells were found on microscopic examination. One of the left lumbar ganglia was harder and larger than that on the opposite side, and among its fibres and ganglion-cells were found cells in all respects similar to those in the uterus, along with cells resembling white blood-corpuscles, and some fusiform cells. Epitheliomatous cells were also found in the connecting branches between the ganglion and the lumbo-aortic plexus, as well as in the ganglia and nerves of the plexus. Similar cells were also found in other portions of the hypogastric plexus.

In the uterus, it was difficult to find the nerves, on account of the destruction of the tissues. In those which were found, the connective tissue sheath was almost entirely destroyed, and the nerve-fibres were infiltrated and atrophied by the cells. In some rare instances, the cells lay between two layers of the sheath, of which the inner was the thinnest. This appearance was also seen in some portions of the lumbo-aortic plexus. Nerves affected in the same way were found in the connective tissue between the bladder and uterus, and also in the left broad ligament. In some parts, also, the nerve-sheaths were infiltrated with migrated corpuscles.

A. HENRY, M.D.

ENGLISCH ON CYSTS OF THE POSTERIOR WALL OF THE BLADDER IN MAN.—In the *Anzeiger der k.k. Gesellschaft der Aertze in Wien*, January 1874, Dr. Englisch has a communication on these tumours. If a sufficient number of preparations be examined, there are not unfrequently found, in the space between

the two vasa deferentia, and less often on the vesiculæ seminales, cysts of various sizes. He describes them as consisting of four different kinds.

The first class of cysts corresponds with the mesial line, and lies in the musculo-fibrous membrane, which binds together the vasa deferentia.

The second kind lies more to the side, near the vas deferens, and is connected with it by means of a process of connective tissue.

The third form lies partially in the prostate, and corresponds with an enlarged sinus pocularis, if its orifice be closed.

A fourth form is connected with the vesicula seminalis, and has no attachment to the vas deferens.

These cysts do not only exist in adults, but are also met with in children, and it has been clearly shown that the first three kinds exist in newly born infants, and become developed later on.

It is probable that the cyst lying in the middle line corresponds with the remains of the Müllerian canals, and that those of the second form proceed from the development of the orifice of the vas deferens, or represent the remains of the cul-de-sac of the Wolffian body.

The third form is developed when the cul-de-sac of the sinus pocularis, which commences at the colliculus, extends far backwards, and becomes distended.

The fourth species is found in connection with the results of inflammation of the vesiculæ seminales, so that the closure of a sinus is peculiarly a result of an inflammatory process.

So long as the cysts are small, they cause no particular annoyance, although they may, as in instances proved, distend the recto-vesical pouch and cause retention of urine.

EDWARD BELLAMY.

DOUTRELEPONT ON A RARE FORM OF SCIRRHUS OF THE MALE BREAST.—Professor Doutrelepont (*Berliner Medicinische Wochenschrift*, March 14) relates a case of a rare form of scirrhus of the male breast (squirithe pustuleux ou disséminé of Velpeau). Carcinoma of the male breast is very uncommon, and this particular form still more so. The patient was fifty years old, weak and sickly looking. In 1870 he first noticed a hard swelling in his left nipple which, however, did not cause much pain. It was treated with iodine ointment. In 1872 he first felt pain from the pressure of his braces, and from that time there was a general enlargement of the swelling. In February, 1873, it ulcerated and spread. This was treated with nitrate of silver. In May, when he first came under observation, the mass had become attached to the ribs. The ulcerated surface was somewhat circular, and had a diameter of about 2½ inches. The base was very much excavated, cicatrised at one little spot, and very hard. There were several hard knots in the skin, and at the edge of the axilla was a movable mass, as large as a pigeon's egg. At the edge of the sternum and close to the xiphoid process, there were two knots attached to the cartilages, and a good many of the axillary glands were enlarged and hard; between this time and July a dozen new tumours had appeared. The ulcer was treated, after Burrow's method, with powdered chlorate of potash.

Two contiguous tumours were removed, and a microscopical examination showed scirrhus. In the proximity of these tumours there was a cell-infiltration through the entire skin in the form of canals, which ran obliquely to the surface, in different places

irregularly dilated, ramifying, and, on closer examination, leaving no doubt that they were in connection with the lymphatics of the skin. Where this cell-infiltration involved the epithelium of the glands of the skin or of the epidermis, great proliferation was manifested. It is probable that the scirrhus in this case spread through the lymphatics of the skin.

EDWARD BELLAMY.

FELTZ AND RITTER ON AMMONIÆMIA.—The authors record, in the *Comptes Rendus*, experiments from which they deduce that urine in affections of the genito-urinary apparatus is very rarely ammoniacal. In the immense majority of cases of alkaliescence, the default is considered to be in the want of cleanliness of the vessels employed, these containing albuminoid substances more or less changed.

PAGET HIGGS, D.Sc.

RECENT PAPERS.

Contributions to the Comparative and Experimental Pathology of Constitutional and Infectious Diseases. By Professor O. Bottinger. 1. Leukemia in Domestic Animals. 2. Syphilis in the Hare. 3. Villous Endoarteritis of the Aortic Arch in the Horse. (Virchow's *Archiv*, vol. lix. parts 3 and 4.)

Contributions to Onkology. By Dr. Steudener. (*Ibid.*)
Researches on Putrefaction and Putrefactive Organisms. By Dr. V. Paschutin. (*Ibid.*)

On Atrophy of Nerve-Fibres and Ganglion-Corpuscles. By Dr. R. Arndt. (*Ibid.*)

Epithelial Cancer of the Dura Mater with Hyaline Degeneration. By Dr. J. von Rustizky. (Virchow's *Archiv*, vol. lix. part 2.)

The Share of Oxygen in the Formation of Pus. By Professor C. Binz. (*Ibid.*)

SURGERY.

SCHELL ON OPERATION ON FISTULA IN ANO WITH THE ELASTIC LIGATURE.—Dr. H. S. Schell describes in the *Philadelphia Medical Times* for February 28, a case in which he operated on fistula in ano by the elastic ligature. The patient was a man, Michael D., aged thirty-six. The fistula, which had existed for several years, was small, opening in the skin about half-an-inch from the verge of the anus, and within the bowel somewhat over an inch from its termination, embracing but little more than the external sphincter ani. The ligature was drawn through the fistula by means of an ordinary eyed probe, brought down outside the rectum, and tied pretty tightly.

An opium suppository was prescribed, to be used in case any pain followed the constriction of the parts. The patient, however, stated that he had no pain at all, and went about the ward as long as he remained in it, assisting the nurse in the care of the other patients. The ligature came away at stool on the fourth day, leaving a granulating wound, to which no further attention was paid, except as to cleanliness, and which healed in the usual manner.

Dr. Schell remarks that the advantages to be derived from the employment of the elastic ligature in this operation appear to be the following. 1. There is no pain. 2. Hæmorrhage is entirely avoided. 3. There is no need of confinement to bed. 4. The bowels may be left to their ordinary regular habits.

The best ligature is composed of three strands of caoutchouc, somewhat compressed within a plaited envelope of white silk into a round cord, and has the strength of an ordinary ligature. The quality of the

article may be judged by smartly stretching an inch or so several times; if unreliable, the gum will crack in various places and slightly project between the threads of the silk, giving the cord a rough, half-broken appearance. A good article has a soft, elastic feel, while the bad is hard and stiff. It is better not to keep much on hand at a time, as the gum finally becomes hard and brittle.

PACKARD ON A SPLINT FOR THE TREATMENT OF EXCISION OF THE KNEE-JOINT.—At a meeting of the New York County Medical Society, on February 23 (*Philadelphia Medical and Surgical Reporter*, March 21), Dr. Packard showed a splint which he had devised for the after-treatment of excision of the knee-joint. The splint at first sight looks like a straight posterior splint for fracture, with two high iron handles at the knee. Instead, however, of being in one piece it is in three pieces, and the handles are iron brackets connecting the upper with the lower section. The middle piece is about four inches in width, and slides between the brackets so as to make the splint continuous. The advantage in this middle section is to afford facility in removing the dressings. The splint when adapted extends up as far as the trochanter major and tuberosity of the ischium; at the lower extremity is an adjustable foot-piece for securing the limb below. The thigh and leg portions of the splint are hollowed out, and to their edges are secured leather sides, which may be perforated by eyelets, and the whole limb in this manner securely fastened. When it is necessary to change the dressing, the limb is elevated and the flat middle shelf slid out. After the dressings are rearranged, this shelf is put back again into position and the limb arranged in bed.

The advantage derived from the apparatus is, that after the operation the ends of the bones may be put in apposition and kept there for an indefinite time, unaffected by the shifting of the dressings. Dr. Packard said also that he found it advantageous after operation to place the limb in such a position that there would be a slight bend at the knee. A more satisfactory result was obtained in this way for the patient, than if the limb were perfectly straight.

Dr. Frank H. Hamilton said that he had found the splint wonderfully adapted for the purpose intended, and withal simple. He was of opinion that it might be of service in some severe cases of fractures, and in some cases of lacerated wounds where it was desirable to keep the parts in a state of rest.

Dr. Lewis A. Sayre also thought highly of the apparatus. It was simple, and well designed for the purpose intended.

CASELLI ON LIGATURE OF THE DEEP FEMORAL ARTERY.—Professor Azzio Caselli recommends (*Bullettino delle Scienze Mediche*, December, 1873), ligature of the deep femoral artery in cases where this vessel, or one of its branches, is wounded and also where it supplies a large tumour of the thigh with blood. The operation, which was suggested to him by the failures that have attended ligature of the common femoral, is performed in the following manner.

An incision, through the skin only, $2\frac{3}{4}$ inches long in thin, and 3 or 4 inches long in fat subjects, is made from the crural arch outside the line of incision for ligature of the common femoral artery. The panniculus adiposus is carefully cut through, and the internal saphenous vein is isolated and turned inwards. The aponeurosis of the fascia lata is

divided on a director, and the crural artery and nerve are exposed by tearing the cellular tissue; the vessel and nerve—the loose cellular tissue between them being torn through with a director—are held apart, and the deep femoral artery is exposed and tied.

Dr. Caselli performed this operation in a case of large tumour occupying the two upper thirds of the inner and posterior part of the thigh, before removing the tumour. The ligature was applied about four-fifths of an inch from the common femoral artery, just above the origin of the external circumflex. The operation was performed with ease, and there was not much hæmorrhage. The patient died, however, of ichorrhæmia at the end of fifty-five hours.

A. HENRY, M.D.

RAVOTH ON UMBILICAL AND VENTRAL HERNIÆ.
Ravoth (*Berliner Klinische Wochenschrift*, March 23, 1874), says that women who have repeatedly borne children, and are subsequently troubled with obesity, for the most part suffer from umbilical rupture, and as a rule neglect it. Hence they frequently present themselves for the treatment of irreducible omental herniæ. In such cases, Herr Ravoth attempts reduction, and if not successful, he applies a large hollow pad, fixed either by means of a band, or by two leather braces, crossing behind. One great difficulty occurs when, as it frequently does, a fresh loop of intestine comes down by the side of this protrusion, and becomes constricted. It is then extremely difficult to diagnose the position of this new portion of gut, and then it becomes an urgent matter whether its reduction should be attempted by the rational taxis. In such a case a peculiarly tense, partially isolated, painful, as it were secondary swelling, must be separated from the original mass very carefully.

The new protrusion rarely lies in the canal of the original one, but is generally to one side of it. It may also happen that this kind of rupture may have other outlets. In doubtful cases, as is customary, operation should be resorted to, and, if possible, without opening the sac. Finally, Ravoth calls attention to the great inclination to a relapse of strangulation, and thinks that treatment by means of the concave pad would prevent this condition. The question as to what sort of truss would best answer the purpose, must depend on the form of the abdomen and the locality of the hernia; and its shape and nature must be taken into consideration, as, without these, a suitable support cannot be obtained.

E. BELLAMY.

LANGER ON DISLOCATION OF THE THUMB AT THE METACARPO-PHALANGEAL ARTICULATION.—Dr. Langer (*Allgemeine Wiener Medizinische Zeitung*, March 3, 1874) describes the results of some experiments on this dislocation. He induced the luxation on the dead body, and, after having frozen the parts and sawn them through, made the following observations. He distinguishes an incomplete and a complete luxation; the latter is when the base of the first phalanx is dragged up upon the head of the metacarpal bone. The obstacle to reduction is due to two factors, ligaments and muscles. His remarks refer to this form of the accident. Complete rupture of the loose capsular ligament invariably occurs, and of both lateral ligaments obliquely.

Dupuytren and Günther advised the subcutaneous section of the latter, since they form, with the volar part of the capsule and the sesamoid bones, an

obstructing ring: this holds good for the incomplete, never in the complete form, which, as Dr. Langer states, occasions complete rupture of the capsular and lateral ligaments.

Further obstacles to reduction moreover exist in that, by the upward dragging of the phalanx, the two interposed sesamoid bones fix themselves firmly on the articular edge of the head of the metacarpal bone, that there a loose portion of the capsule is turned over, and that, in place of the normal horizontal direction, the muscles of the thumb come to lie in an oblique, indeed nearly vertical direction to their insertion on the other side of the joint, whereby they fix the phalanx in this new position.

The treatment must consist of either powerful extension, forced flexion, or the so-called impulsion (*i.e.*, forward pressure against the base of the phalanx, at the same time powerfully dragging it back) and, failing either of these, operation. This consists in making an incision in the volar surface, and removing a piece of the head of the bone, with, if necessary, the sesamoid bones also, and finally fixing the thumb by means of a splint.

EDWARD BELLAMY.

ROSENBERGER ON SPONTANEOUS FRACTURE OF THE FEMUR FROM CARIES AND REUNION BY NEW BONE.—Dr. Rosenberger describes a case (*Berliner Klinische Wochenschrift*, April 6, 1874) occurring in the hospital practice of Dr. Linhart of Würzburg. The patient was a boy fourteen years old, hitherto perfectly healthy and with no sign of scrofula, and who was the subject of osteitis of the lower end of the femur. The abscess was first opened nine days after he first noticed pain in the part. The suppuration was very profuse. The patient was in such a condition that amputation was proposed, but he would not consent to its being done. Two months afterwards, an examination was made under chloroform. The fistulous opening which remained from the previous incision was cedematous and its edges everted. No fluctuation could be felt; nevertheless, Professor Linhart made a fresh incision in order to see the condition of the bone, and possibly find an abscess in it. The result was remarkable. The pus-cavity, in the midst of which, when the original abscess was opened, the bone was felt to be denuded of periosteum so far as the finger could reach, was found to be reformed. The bone was covered again by periosteum, and attached to its surrounding muscles. It was, however, otherwise at the point where the incision had been made. Here the caries had spread so far that there was complete destruction of the continuity of the bone. There was no retention of pus. The limb was placed in a splint. The patient had severe constitutional disturbance, threatening of suppuration in the joint, and symptoms of pyæmia. He, however, by degrees recovered. Frequent examination of the bone showed a general thickening at the point of fracture. Six weeks after the second incision the splint was taken off, and the patient was, without much difficulty, able to straighten his limb. At the time of the report, he could move and lift the leg readily and without any pain. A little carious bone could be felt through a fistulous track.

The treatment of this case is not properly at an end as yet, but it is so far already complete as to be considered so, and worthy to be recorded. Dr. Rosenberger states that a case of fracture from osteitis without any direct dyscrasia, is unknown to him.

EDWARD BELLAMY.

BELL ON ASPIRATION IN RETENTION OF URINE. Dr. Joseph Bell relates an instructive case (*Edinburgh Medical Journal*, April, 1874), and adds: Cases admitting or requiring this treatment will not likely be very frequent—indeed, I have not met with another out of a very large number of stricture cases seen since June; still, in this one, any other treatment would have been very dangerous.

Perineal section is always tedious, requiring chloroform, which the weak heart and emphysematous lungs and diseased kidneys would have borne ill; besides, perineal section has its own dangers in old exhausted subjects. Tapping by rectum would have been difficult, from the enlarged prostate. Catheterisation had failed. The operation was painless, and left no trace. I have a very strong feeling that in similar cases, the aspirator gives us an easy, safe, and reliable means of tiding over a difficulty, emptying the bladder, and thus giving time for other treatment.

It is possible, if necessary, to repeat the aspiration frequently in the same region, but not exactly in the same situation.

The special merit of the aspirator here is, that it enables us, by the suction-power it possesses, to withdraw the urine through a tube little larger than an acupuncture needle, the wound inflicted by which heals up at once and leaves no trace.

RECENT PAPERS.

- Endoscopic Examination of the Urethra and Bladder. By Dr. J. Grünfeld. (*Allgemeine Wiener Medizinische Zeitung*, nos. 12 and 13.)
- Remarks on Cancer of the Breast. By Professor Podrazki. (*Ibid.* no. 14.)
- Case of Popliteal Aneurism treated by Ice. By Dr. C. Machado. (*Gazeta Medica da Bahia*, Dec. 31, 1873.)
- Dislocation of the Lower Jaw on the right side: Difficulty of retaining the Condyle in the Glenoid Cavity. By Dr. Meton de F. Alencar. (*Ibid.* Jan. 15, 1874.)
- Cases of New Growths in the Larynx. By Professor Navratil. (*Wiener Medizinische Wochenschrift*, nos. 8, 9, and 10, 1874.)
- On Distortions of the Spinal Column. By Professor J. Engel. (*Ibid.* nos. 10 and 11, 1874.)
- Intrabuccal Resection of the Inferior Dental Nerve by Paravicini's Method for Neuralgia: Recovery. By Dr. E. Mosetig-Moorhof. (*Ibid.* no. 12, 1874.)
- Spontaneous Fracture of the Femur through Carious Destruction: Union by Bone. By Dr. Rosenberger. (*Berliner Klinische Wochenschrift*, no. 14.)
- On Subpubic Hernia. By Dr. A. Paci. (*Lo Sperimentale*, March, 1874.)
- Case of a Rare Form of Narrowing of the Larynx, with Remarks on Tracheotomy. By H. Laub. (*Hospitals-Tidende*, nos. 4, 5, and 6, 1874.)
- Case of Congenital Incarcerated Inguinal Hernia. By V. Meyer. (*Ibid.* no. 8, 1874.)

MATERIA MEDICA AND THERAPEUTICS.

MCGAUGHEY ON THE USE OF GELSEMINUM IN INTERMITTENT FEVER.—Dr. J. D. McGaughey, of Wallingford, Connecticut, writes as follows in the *Philadelphia Medical Times* for March 7, on the use of gelseminum in intermittent fever.

'Every physician who has had to deal with intermittent fever has met with cases of a regular paroxysmal form, quotidian, tertian, or otherwise, easily controlled by quinine; yet after a certain length of time the paroxysms return again and again, necessitating larger antiperiodic doses, until the alkaloid

has become useful only in preventing for a short time the attack, having lost its curative powers altogether. In such cases, gelseminum shows its antimalarial powers to a gratifying extent. If, after taking, as it were, a new start in the treatment of such a variety of intermittent fever, we attend to any congestion of inaction that may be lurking about the abdominal viscera, and combine quinine with gelseminum, and give them until the latter produces its physiological effects, the inveterate catenation of morbid action will be broken in upon without failure in almost every case, and there will be but little danger of relapse until the subsequent season. Of course, it will fail to produce the desired effect in a small percentage of cases.

'A second variety is where, in the beginning of autumn, the malarial cases lose their regular paroxysmal form, and are characterised by irregular chills and sweats—a partial paroxysm sometimes occurring in the morning or afternoon—occasionally alternate fever and sweating during the night; loaded tongue; pains in the bones and joints all over the body; headache; anorexia; nausea; high-coloured urine; occasional dysenteric symptoms; malaise, &c. If quinine have been used alone in these cases without any amelioration of symptoms, the vagary of malaria still holding its curious anomalous course, gelseminum, added to the treatment, and pushed to considerable weakness of eyelids, will generally conquer the disease in a short time.

'I feel pretty well assured that, if physicians will give gelseminum a fair trial in connection with quinine, in cases where quinine alone has failed to cure, they will meet with gratifying success; provided they push the gelseminum until its physiological effects are produced. I think it is of prime importance, in all cases of malarial fever, to attend strictly to the condition of the abdominal viscera—to keep the eliminative organs, bowels and kidneys, in a state of activity. It is to the neglect of such precautions that we are to attribute so many failures in administering quinine. I paid attention to this point in the treatment of about one hundred and twenty-five cases of intermittent fever which have come under my observation in the past two years, and I am fully convinced that, if we ignore the condition of the abdominal viscera, and recklessly rely upon the antimalarial powers of quinine alone, or its accessories, the fame of cinchona as a specific will never be vindicated or realised.'

MILLER ON TRAUMATIC TETANUS TREATED BY HYPODERMIC INJECTION OF ATROPIA: RECOVERY.—At a recent meeting of the Wayne County (Illinois) Medical Society (*Philadelphia Medical and Surgical Reporter*, March 21) Dr. Miller reported the case of a man whom he saw on December 24, two weeks after the accident. The patient had received a gun-shot wound on the hand, the ball entering the palmar surface, carrying away the larger portion of the fourth and fifth metacarpal bones. The patient was exposed on the 28th, during a sudden change of the weather, and immediately afterward he was seized with rigidity of the muscles. Hydrate of chloral was given, but without relieving the spasm.

Dr. Prince was called in consultation the next day. He suggested the hypodermic injection of one-sixtieth of a grain of sulphate of atropia. An immediate amendment of symptoms followed the first injection. The chloral was continued, with an in-

jection of atropia twice daily, for about four weeks. Whenever the effect of the medicines passed away, the violent spasmodic condition returned. The patient always expressed himself as greatly relieved by the hypodermic injection. The pulse ranged during this time from 112 to 120. On January 29, there were marked symptoms of improvement, from which time convalescence uninterruptedly continued.

BOULEY AND BÉHIER ON TRANSFUSION OF BLOOD.—An interesting case of transfusion was recently recorded in the archives of the Paris Academy of Sciences, by M. Béhier. At the moment before M. Béhier completed transfusion, the patient seemed menaced with instant death. The pulse was imperceptible, and the faculties in a corresponding state. M. Béhier, dwelling upon the facts of the case, insists especially upon the necessity of injecting blood as it occurs in nature, without previous defibrination or lowering of temperature. The preliminary operations, intended to prevent coagulation of the fibrin, are useless when the operation is performed promptly, which is easy. M. Béhier insists upon the injection of living blood, with its corpuscles unaltered by beating or refrigeration, and besides containing intact the albuminoid matters whose nutritive value is considerable. M. Béhier also insists upon the possibility of simplifying one of the most important of the manual operations. One of the difficulties is the introduction into the vein of the cannula or trocar conveying the blood. Nélaton, to obviate this inconvenience, proposed an incision at the level of the vein, to an extent of two to three centimètres (.78 to 1.1 inch). Béhier advises opening the vein with a mandril, or instrument such as will make an incision suitable to the size of the cannula to be introduced. It is further advised that the blood be introduced slowly and in small quantities at a time. The transfusion ultimately was highly successful, and the patient was discharged perfectly cured. Baron Larrey declares very strongly in favour of this system, by which two operations, as formerly, are now reduced to one.

In a paper immediately presented to the Academy, M. Bouley further describes the instrument advised by M. Béhier, that known as invented by M. Moncoq. This apparatus consists essentially of a syringe, the body of which is of crystal-glass, the piston being worked by a graduated wheel. Alternate motions of a quarter of a turn being given to this wheel, the piston is raised and lowered, and thus to the liquid blood regular impulses are communicated, imitating those which result from the beating of the heart. Originally, M. Moncoq transfused with the aid of two caoutchouc tubes, one of which communicated with the person from whom blood was drawn, the other with the patient who was to receive the blood. The last modification nearly realises perfection. This modification consists in the adaptation of a small cup to the inferior portion of the body of the pump. This cup, of small diameter, is applied, inverted, upon the vein whence blood is to be extracted. The blood drawn into the cup is carried into the body of the pump, and thence transferred to the recipient vein.

PAGET HIGGS, D.Sc.

BOND ON A PALATABLE DRINK OF CASTOR OIL.—Dr. H. Treverton Bond, writing to the *Druggists' Circular*, recommends the following plan of dispensing castor oil and converting it into a palatable drink. Pour into a tumbler about six drachms of syrup of sarsaparilla, add a small quantity (about 20 grains) of bicarbonate of soda, stir with a

spatula, add about a tea-spoonful of a saturated solution of tartaric acid, and again stir well; this produces a heavy viscid froth. Pour down the side of the tumbler, so as to sink to the bottom and not mix with the froth, about an ounce of water; then add the oil. The whole is to be drunk without agitation. The water is at the bottom, the oil in the centre, and the froth on the top. The drink so prepared is said to be tasteless, and the oil is all taken, as, after dispensing, the glass can be washed clean with water, showing that no grease adheres to its sides.

RECENT PAPERS.

On the Examination and Determination of Preparations of Ergotin for use in Practice. By Dr. Wernich. (*Berliner Klinische Wochenschrift*, no. 13, 1874.)

The Treatment of Diabetes Mellitus. By Dr. Boragine. (*Lo Sperimentale*, Feb. 1874.)

On the Medicinal Action of Iodide of Potassium and Corrosive Sublimate. By Dr. H. Kämmerer. (*Virchow's Archiv*, vol. lix, parts 3 and 4.)

PUBLIC HEALTH.

BELL ON THE ADULTERATIONS OF STARCHES, TEA, AND COFFEE.—On Thursday, February 19, Mr. James Bell (of the Inland Revenue Office) delivered a lecture before the members of the Chemical Society, at Burlington House, on 'The Detection of Adulteration in Food and Drink.' The chair was taken by Dr. Odling, F.R.S., the President of the Society.

Mr. Bell commenced by observing that he should confine himself chiefly to an examination of those articles, the detection of adulterants of which required the use of the microscope. They were more interesting than those which required a chemical examination.

He considered it most important that chemists, qualifying themselves as public analysts, should be thoroughly acquainted with the characteristics of different starches used in adulteration. They comprised wheat, barley, oats, rye, maize, potatoes, peas, beans, sago, and arrow-root, and were used to adulterate mustard, cocoa, coffee, spices, &c. The cheaper starches were either mixed with or substituted for the dearer starches. Potato-starch was substituted for true arrow-root; bean-flour for other flour; and oatmeal was adulterated with barley. When starch was examined under the microscope, it was found to consist of minute granules. Diagrams of the various granules in the starches were here exhibited and explained by the lecturer, who showed the difference between them in size, shape, and appearance.

The adulteration of coffee had given rise to much discussion. It was only when roasted and ground that it could be adulterated successfully. A simple way to detect adulteration in coffee was to place some in water in a test-tube, and in five minutes its presence would be detected. If infusions of equal quantities of chicory and coffee were placed in tubes, the colour of the chicory infusion would be twice as deep as of the coffee infusion. By the aid of the microscope the presence of chicory could be ascertained, and by the density of its infusion the quantity was known. Even 5 per cent. of adulterating matter in coffee could be detected. The husk of coffee-berry was removed, and it was the bean only that was brought into this country. Inside the husk was

the parchment, and inside that the skin which enveloped the bean. A portion of skin came with the bean, because more or less of it was contained in the folds of coffee-bean. The various tissues of the coffee-bean were then described by Mr. Bell; who afterwards said that the law allowed chicory or any vegetable substance to be substituted either for coffee or chicory, provided that a duty had been paid upon the article, so that any person was at liberty to prepare any article as an adulterant, provided he paid a duty upon it. If vegetable matter were used, it must be grown in the United Kingdom. Coffee was so peculiar in its vegetable structure, however, that there was no difficulty in detecting seeds used as adulterants, or in identifying the seeds. Locust-beans had also been found in coffee to the extent of 30 per cent. Rye had also been used to adulterate coffee; and when roasted and ground, there were always some starch-granules remaining. Its presence could be detected both by the granules, and by the character of its husks. Venetian red had been used to colour both chicory and coffee, and black mustard for chicory.

The practice of adulterating tea dated back many years. The character of adulteration was now entirely different from what it had been; and it was effected before the importation of the tea. Exhausted tea leaves were prepared in China, where the chief adulteration was carried on for the purpose of imparting a green tint, so much desired by the people of this country. Tea, in China, was adulterated with magnetic oxide of iron. To separate the tea, it should be ground into powder, and then a magnet moved over it would draw along with it all the oxide of iron. The practice of manufacturing tea from exhausted leaves in this country was almost discontinued; at least, there had been no complaints made about it. In the preparation of exhausted tea-leaves, the leaves were twisted into their proper form by the use of gum. Black tea was adulterated with black lead. Mr. Bell described minutely the face, serrations, skin, leaves with long hairs on them, the form of cells and the cell-walls, &c., of tea and some of its adulterants. The best way to examine samples was to put them in water; the damp leaves should then be opened and expanded, placed on a glass slide, and first examined with the naked eye, and afterwards with the microscope. After a little practice, a person would have slight difficulty in determining whether a leaf was a tea-leaf or not. The Chinese used also quartz as an adulterant, and tea had been found to contain as much as 200 per cent. Nine per cent. of oxide of iron had also been found in some tea. The colouring of tea was done chiefly with soap-stone. In this country, at one time, a variety of substances was used for the facing of green tea. Many of them were poisonous substances. As a rule the favourite article now used for that purpose was a mixture of Dutch pitch and Prussian blue. The easiest way to detect the latter was by means of the microscope, under which the angular crystals were seen, and the particles of pitch turned brown. Black lead, under the same test, presented a very lustrous appearance; there was a complete absence of any structure. As to exhausted tea-leaves, the means hitherto adopted to determine their presence, was to ascertain the quantity of insoluble matter, gum, and tannin. Old leaves were known by their rough surfaces. Young leaves were clothed with hairs, both on the upper and lower surfaces. The most reliable data to

determine the quantity of exhausted tea-leaves was the presence of gum, which sometimes was found deficient in quantity, and at other times in excessive proportions.

The lecturer concluded by treating briefly of pepper and mustard.

MISCELLANY.

A CHILDREN'S HOSPITAL is to be erected in Alservorstadt, a suburb of Vienna. A lady named Karoline Riedl, recently dead, has bequeathed 100,000 florins (10,000*l.*) for this purpose.

DISTRICT MORTUARIES.—The vestries of Marylebone, Paddington, and St. Martin's in the Fields, have already adopted the very necessary step of providing a parish mortuary, and we are glad to find that St. Mary, Islington, has this week followed the example. These mortuaries are fitted with air-tight glass coffins, and the proper appliances for the performance of *post mortem* examinations. Where, as in Clerkenwell, this provision is not made, the poor have to suffer, especially in cases of inquests, the most revolting hardships.

A DIPLOMATIC CONGRESS.—We have authority to state that a diplomatic Congress relative to the treatment of prisoners of war, in which nearly all the European Governments will be equally represented, will take place in Paris early in May. The preliminaries of the Congress have been arranged by the *Alliance Universelle*, and judging from the care with which the *projet de règlement* has been prepared, and from the willingness which the Great Powers have shown to give diplomatic assistance in discussing it, there is reason to hope that a satisfactory result may be obtained.

THE ALLEGED DEGENERACY OF THE HUMAN RACE. Dr. J. M. DaCosta, in his late valedictory address to the Graduating Class of the Jefferson Medical College in Philadelphia, remarks as follows: 'What we hear of the physical degeneration of our race is very doubtful. I think the men as well-formed and as capable of continued exertion as ever. When we call to mind the marches of the British troops in India and Abyssinia, or of the Prussians in their late campaign; when we reflect on the splendid heroism, the privations endured, the extraordinary vigour of the men, both from the North and South, who were citizens one day, soldiers another, and who, brethren again, have raised the American name into a synonym for determination and endurance, it takes very strong faith to believe that the men of the second half of the nineteenth century are degenerating.'

CHOLERA IN ITALY.—A letter from Dr. Maragliana, sanitary commissioner, to the *Movimento* of Genoa, shows that since the end of February the cholera has revived in the five provinces where it had already claimed a certain number of victims. These provinces are respectively Vernazza, Monterosso, Manarola, and Riomaggiore. The disease reappeared in consequence of great earthworks in connection with the railway, which brought together four thousand workmen, placed under the most deplorable sanitary conditions. It has been found necessary to disperse them by force, and to isolate the cholera patients and their families. The cholera has also made its appearance in Genoa and in different parts of Liguria. It has made its way from Vergatto to Porretta, and thus threatens to invade the centre of Italy. Professor Brugnoli and Dr. Rosi, commissioned by the provincial Council to inform themselves of its progress, have adopted rigorous measures for the isolation of the cholera-patients, having verified the deaths of three persons from this disease, which appears to have been imported by the labourers of Vernazza. Great precautions are therefore held to be necessary.

TRICHINOSIS.—In Gossengrün, a small town in Bohemia, sixty persons have been affected with trichinosis from eating diseased pork, and six have already died. There have also been recently some cases in the hospital at Pesth.

THE GERMAN UNIVERSITIES.—Professor von Recklinghausen, now of Strasburg, has been invited to the chair of Pathological Anatomy in Vienna, in the room of Professor Rokitsansky. Dr. Köster, of Giessen, has been chosen professor of Pathological Anatomy in Bonn, in the room of Professor Rindfleisch, who goes to Wurzburg.

ANCIENT RECIPES.—The *Philadelphia Medical and Surgical Reporter* quotes the following curious letter, taken originally from the *Carolina Gazette*, of May 9, 1750 :—
‘To the Printer—Sir, I am commanded by the Commons House of Assembly to send you the enclosed, which you are to print in the *Carolina Gazette* as soon as possible. It is the negro Caesar’s cure for poison, for discovering of which, and likewise his cure for the bite of a rattlesnake, the General Assembly hath thought fit to purchase his freedom and grant him an allowance of 100*l.* per annum, during life. I am, &c., JAMES IRVING. Take the roots of plantain and wild hoarhound, fresh or dried, three ounces; boil them together in two quarts of water to one quart, and strain it; of this decoction let the patient take one-third part three mornings, fasting, successively, from which, if he finds any relief, it must be continued until he is perfectly recovered: on the contrary, if he finds no alteration after the third dose, it is a sign that the patient has not been poisoned at all, or that it has been with such poison as Caesar’s antidotes will not remedy, so he may leave off the decoction.’

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The London Medical Record.

WEDNESDAY, APRIL 29, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

DOGIEL ON THE PHYSIOLOGICAL ACTION OF ALCOHOL.

In a paper on monatomic alcohols in their pharmacological relations, read before the meeting of Russian *savants* at Kasan in 1873 (Pflüger's *Archiv*, vol. viii. part 11, 12) J. Dogiel arrives at the following results.

1. Ethyl-alcohol, when introduced into the stomach, is not only absorbed by the veins, but also by the lacteals. The alcohol can be detected in the chyle of the thoracic duct, as well as in the serous and arterial blood, in about a minute and a half after its introduction.

2. The excretion of the alcohol from the organism, apart from the ways already known, occurs also through the skin in frogs.

3. Ethyl-alcohol acts chiefly, not through reduction in the blood, not through the oxydation-products of the alcohol in the blood (certainly not through aldehyd or acetic acid), but as alcohol.

4. The action of alcohol on blood obtained from an artery is very different, both in relation to its coagulation, and to the escape of hæmoglobin from the blood-corpuscles and its crystallisation, according to the concentration and quantity of the alcohol, and according to the duration of its action and the temperature. Blood drawn from an artery, and treated with alcohol from 40 to 20 per cent. (after Richter) either does not coagulate at all, or only very loosely; whilst alcohol of 97 per cent. causes even defibrinated blood to coagulate. The most favourable circumstances for the preparation of hæmoglobin crystals, is to add to 10 grammes of defibrinated blood, two or three grammes of 97 per cent. alcohol and allow the mixture to stand for twenty-four hours, at a temperature of 57° to 63° Fahr.

5. The crystallisation of hæmoglobin under the influence of alcohol does not depend on the action of oxygen. Blood charged with carbonic oxide or carbonic acid, crystallises almost at the same time with arterial and venous blood.

6. Blood from an animal, which is under the influence of alcohol, coagulates more slowly and yields less fibrine than normal blood.

7. Ethyl-alcohol rapidly causes the amœboid movements of the white corpuscles to cease, and at a certain concentration dissolves both them and the red ones.

8. If ethyl-alcohol be added to blood drawn from an artery, putrefaction is retarded and the development of low organisms prevented. Arterial blood, obtained from an intoxicated animal, decomposes more quickly than normal blood.

9. The action of ethyl-alcohol on the heart-beats

consists in acceleration followed by retardation. Under a strong alcoholic action, the very pronounced retardation of the pulse passes again into acceleration. These phenomena depend on the one hand upon stimulation of the accelerating nerves of the heart, and on the other, on the increased and afterwards diminished excitability of the inhibitory fibres of the pneumogastric nerves. In general, however, the excitability of the accelerating nerves of the heart resists the paralyzing action of the alcohol longer than does the excitability of the pneumogastric nerves. Ethyl-alcohol is not without an effect on the cardiac muscles, which is indicated under certain circumstances by the beats of the heart becoming slower and stronger.

10. The arterial blood-pressure is at first increased and then diminished by the alcohol. The excitability of the vaso-motor centre runs parallel to the blood-pressure. If the blood-pressure have sunk, neither dyspnoea, nor the reflex stimulation of the vaso-motor centre from the central end of the vagus, produces the ordinary effect.

11. The rapidity of the blood-current in the carotid artery is at first increased and then diminished under the influence of alcohol. The greatest retardation of the blood-current coincides with the period of alcoholic narcotism (sleep).

12. Respiration is accelerated when small doses of ethyl-alcohol are introduced into the stomach or injected into a vein of the leg; with larger doses it is, however, rendered slow. The depth and rhythm of the respiration also vary. The slow respiration is at the same time superficial. Inspiration becomes longer. The reflex action from the vagus on the respiratory centre, which is generally evidenced by an acceleration of the respiration, becomes weaker, according to the degree to which the intoxication increases. If alcohol be injected into the jugular vein in the direction of the heart, there follows at once, with intact vagi, slowness of respiration; with divided vagi, however, there is acceleration. The change of the respiration under the influence of alcohol depends on its action both on the medulla oblongata, and on the ends of the sensory fibres of the vagus in the lungs.

13. The temperature of the body sinks under the influence of alcohol.

14. The reflex movements produced by irritating the skin in beheaded frogs are first increased under alcohol, and then diminished.

15. The excitability of motor and sensory nerves is at first increased and then lowered.

16. The power of muscular contraction is affected in the same way.

17. The quantity of chyle from the thoracic duct is at first increased, and then diminished.

18. The same is true with regard to the secretion of the gastric juice.

19. The quantity of urine increases, even though the peristaltic movements of the ureters follow each other at increased intervals.

20. The secretion of saliva from the submaxillary gland is increased, whether the alcohol be injected directly into the stomach or into the blood.

21. The action of ethyl-alcohol on the nervous system is direct, but is not caused by changes of the blood or of the circulation.

22. Methyl-, propyl-, butyl-, and amyl-alcohols, act similarly to ethyl-alcohol, but differ from each other in the intensity of their action. This difference in the intensity of the action of monatomic

saturated alcohols stands in intimate relation to the difference in composition in these compounds. Corresponding to this, methyl-alcohol acts less intensely than ethyl-alcohol, whilst propyl-, butyl-, and amyl-alcohols act in the ascending scale much more strongly.

WILLIAM STIRLING, D.Sc., M.B.

CHARCOT AND OTHERS ON AUDITORY VERTIGO (MÉNIÈRE'S DISEASE).

(Continued from page 240.)

We now come to speak of the nature of the ear-disease. We have assumed that the labyrinth is affected, but how it may be affected is yet to be considered. It may suffer primarily or secondarily. There may doubtless occur hæmorrhages in it just as these occur in the retina. Knapp strongly urges that aural diseases should be studied in close connection with eye diseases. If we find suddenly occurring nervous deafness, with or without other symptoms of Ménière's disease, there is certainly a possibility of hæmorrhage in the labyrinth, and we should enquire into the state of the heart, arteries, and urine, to see if there be a condition for hæmorrhage, as we should certainly do if we saw hæmorrhages in the retina. Saying nothing further of pathological changes occurring in the labyrinth itself, we speak of other aural conditions which interfere indirectly with it. As the following quotation from the Reporter's paper already referred to (see *Medical Times and Gazette*, August 17, 1872, p. 169) is only a compilation, it may be given here, with additions, as a summary.

'Even if it be granted that the semicircular canals are the parts in fault in Ménière's disease, they may be only secondarily so; they may be, indeed, only suffering from some fault in the more external parts of the aural apparatus. Increased pressure (resulting from stoppage of the meatus by wax, by catarrh, acute or subacute, and purulent processes in the cavity of the tympanum), "transferred from the stapes to the vestibulum, must necessarily place the semicircular canals in an abnormal state of pathological irritation"—(Trötsch, op. cit.) In other words, the primary changes may be in the non-nervous part of the ear. In syringing an ear in which there is a hole in the membrana tympani, we have symptoms essentially like those of Ménière's disease. Dr. Gowers has recently pointed out that Bell's paralysis of the face sometimes comes on with vertigo; considering the relations of the portio dura nerve to the ear, this is an important observation. The Reporter suggests that the vertigo may be caused by sudden paralysis of the stapedius, a muscle supplied by the portio dura nerve, and thus be owing directly to non-antagonised action of the tensor tympani. It is only in suddenly occurring cases that we can suppose symptoms of Ménière's disease to depend on primary changes in the labyrinth itself. Politzer (quoted and indorsed by Trötsch, op. cit.) says, "If a person who has formerly heard well becomes suddenly deaf, or hard of hearing, with the symptoms of an apoplectic attack, and there is at the same time an uncertain and staggering gait, but there are no symptoms of paralysis in other nerve-tracts, and if the examination shows a normal membrana tympani and perfectly permeable Eustachian tube, we may believe, with great probability, that there is an affection of the labyrinth."—(Trötsch, op. cit., p. 507.)

We now come to speak of the rare example of Ménière's disease recorded by Charcot. His patient was a woman fifty-one years of age. The vertigo was continual, and very strongly marked. It was present night and day, when lying down as well as when standing up, although in the latter position it was enormously exaggerated, as also when her bed was moved. But occasionally there were seemingly spontaneous aggravations. The following quotation gives a vivid account of her condition. 'Sometimes in the midst of apparent calm the patient, as you will no doubt see, is all at once seized with a violent jump. If you ask her the cause of this brusque movement, she invariably replies that she has had an attack. And in fact there are in this patient, besides the vertiginous state which I have tried to describe to you, paroxysmal exacerbations of vertigo, which constitute a kind of attack. They seem to be chiefly characterised by the sensation of a brusque movement of translation, not of surrounding objects, but of the patient herself; a movement entirely subjective, and of which this jumping is the only outward sign. Consciousness is unaffected, and when the attack is over, the patient can describe what she has felt. Sometimes, and most often, it seems to her that she falls headlong forward, at other times the fall seems backward. Lastly, this is the most rare, there is the sensation of rapid rotation of the body round its vertical axis, this rotation being always from left to right. Whichever it be, the motory hallucination is always followed by great anxiety, pallor of the face, and cold sweats. Finally, nausea and sometimes vomiting ends the attack, after which the vertigo subsides, so to speak, to its normal state.' The patient always has a whistling in her ears, but occasionally this is acutely increased. This exacerbation of the noise is a warning to her that an attack of vertigo is coming on, and that the jumpings are imminent.

For a long time the patient had had discharge from the two ears of pus mixed with blood. The right membrana tympani was thickened, the left was replaced by granulations, and on this side the hearing was considerably enfeebled.

Another remarkable feature was that the vertiginous state had been so severe and continued that for six years the patient had been obliged to keep her bed; before that time she had at intervals attacks but little marked; they became gradually more marked and nearer together until the vertigo and noises were, as stated, permanent, but occasionally exacerbated. It is mentioned that the patient has had attacks of hysterical convulsions, which, however, were independent of the attacks of auditory vertigo. At present the hysteria is only represented by incomplete left hemi-anæsthesia with ovaralgia of the same side.

We conclude this article by a reproduction of Charcot's remarks on it.

'In the first place, I shall show the intimate relation which exists between the sudden development of noises in the ear, or the rapid aggravation of these noises and the outset of vertiginous sensations. In reality, one of the special characteristics of Ménière's vertigo is that it is always ushered in and accompanied by the noises in question. Doubtless the singing, buzzing, and whistling of the ear are very common phenomena, and accompany different kinds of vertigo besides that which is a symptom of Ménière's disease, but in this affection they acquire at the time of the attack a predominance and intensity which is certainly not found in other diseases.

As patients say, the noise is harsh "like the whistle of an engine," or like the noise which will be made by "shaking violently a sack filled with nails." Again, it is compared to "the firing of guns or of fireworks." This noise is either exclusively or specially in one ear. In slight or recent cases it ceases with the attack of vertigo. But sooner or later, if the case be a grave one, it becomes persistent, continuing in the intervals in a milder form of singing and buzzing more or less annoying. Also the affected ear soon shows signs of more or less pronounced and permanent deafness.

After remarking in detail on the nature of the affection of hearing in different cases, Charcot says that there is reason to think, moreover, from the facts as a whole, that any pressure whatever exerted on the tympanum and propagated to the labyrinth by the chain of ossicles is sufficient to produce the symptoms of Ménière's vertigo.

'Considered, however, simply in the character of vertigo, it has some special characters. It is most frequently, if I may judge by the ten or twelve cases of my own, the sensation of a movement of translation of the entire body from behind forward, or from before backward, in a manner to give the patient an idea of a fall forward or backward as the case may be; again when there is added the sensation of moving round a transverse axis, an actual somersault, even a "saut de tremplin." Sometimes the body seems to rotate round a vertical axis either from left to right or from right to left. There are patients who in their different attacks think they have sometimes one sometimes the other of these modes of rotation. Remark that generally these movements are entirely subjective, real hallucinations, which only show themselves externally by a start, a movement of surprise, sometimes by the necessity the patient feels of clutching surrounding objects or sitting down. But it may happen that a fall actually takes place, and that the patient is violently thrown to the ground in the sense corresponding to the vertiginous sensation. I may cite, as an instance of this, the case of a lady, who in her attacks always felt thrown headforward, and who, in fact, in one of them, fell heavily on her face and broke the bone of her nose. I do not deny that the feeling of rotation or of moving is observed in vertigoes of the most varying kinds; but I believe I may say that they are not found in any so decided or so constant as in the vertigo of Ménière.

'It is important to observe that during the attack, whatever may be its intensity, the patient preserves absolutely perfect consciousness of his acts, and that when the first effects of the seizure are passed he can immediately, without any confusion, give an exact and detailed account of all he has experienced.

'Under the title of accessory phenomena I shall describe what follows. Almost always, nausea and vomiting mark the end of the attack. While the latter continues the face is pale, the skin cold and covered with perspiration, so as to produce an appearance of syncope rather than of "coup de sang." There may exist a transitory headache, more or less severe. There is never any embarrassment of speech or muscular spasm either of the face or limbs; never any tingling or numbness; no sensations whatever suggestive of aura; never any paralysis nor temporary paresis. At first, that is to say, when the disease of Ménière is yet but beginning, the vertigo appears under the form of distinct crises of short duration, separated by intervals of absolute calm,

during which the symptoms of the local disease from which they arise continue alone. But in the natural course of things, as the affection progresses, the crises tend to approach and to be confounded with each other, so as in the end to constitute a permanent vertiginous state, so to speak, in the midst of which occur paroxysms more or less frequent, and which reproduce all the phenomena of the old attacks. The patient I have shown you offers a very decided example of the subintransient crises which are usually observed, I repeat, in patients who have for years been the subjects of the grave forms of Ménière's disease.

'You will easily understand, gentlemen, the use which may be made of all the elements which I have been bringing together in the interests of diagnosis. . . . I reserve for another occasion what is known most positively relative to the pathological anatomy and theory. In what concerns the latter, the experiments of Flourens, of MM. Brown-Séquard, Vulpian, Cermak, Gall, Lœwenberg, which consist in producing in animals various lesions of the semicircular canals have furnished, we do not forget, important results. To-day, I shall conclude by a few words with regard to prognosis and therapeutics.

'It is very remarkable that, as a rule, the grave lesions of the nervous centres, which are so frequently the consequence of different diseases of the internal ear, do not usually occur in Ménière's disease, even when the latter has attained its highest degree of severity. The course of things in the most decided cases is this. The deafness gradually increases, till at a certain moment it becomes complete, absolute.

'The vertiginous symptoms and the whistlings go on, so to speak, at an equal pace, *i.e.*, they gradually decrease and finally disappear. They did so, for example, in the case of the patient of whom I have spoken above, and who in one of his attacks fell on the Place de la Bourse. Subject to the whistlings and vertigo since 1863, he now finds himself quite free from them. But, on the other hand, he is now deaf, so deaf that though he lives close to the Champ-de-Mars he heard absolutely nothing of the explosions of powder in the Avenue Rapp (1871). I am often asked if it would not be well to seek the means by some intersection, of hastening the denouement, at least in grave cases when, for instance, the patients are reduced by it to the lamentable state you have seen in the patient Gir—. It is a point which I offer for your consideration.

'Whatever it be, I must not conceal from you that Ménière's disease often resists the best-directed treatment. I have, however, several times seen vertigo occurring with catarrh of the tympanum decrease, and even disappear, under the influence of the common treatment of the latter affection.

'Here I may remind you of the very interesting case observed by M. Hillairet in which vertigo completely ceased after the opening of an abscess in the middle ear. The application of energetic revulsives must not be neglected in the severe cases. *Apropos* of these, I will describe a case I saw lately. One of our brethren in the provinces, now forty-four years of age, felt, for the first time six years ago, some heaviness of the head and buzzing of the ears returning in paroxysms. Some months later, while driving in the country alone, he all at once felt insupportable whistling in the left ear, and at the same time his head becoming heavy seemed to drag him forward. He was obliged to get out of his carriage, and to lie down for an instant upon the road. Nausea, followed

by vomiting of glairy matter mixed with bile, ended the attack. Attacks of the same kind have frequently occurred since, and in the meantime the hearing of the ear affected has become feebler. Examination discovers nothing on this side except a certain degree of thickness of the membrane of the tympanum. All treatment tried having failed, I proposed the application of "pointes de feu" on the left mastoidal region. The applications were repeated three or four times. After this treatment all the symptoms were obviously diminished.'

J. HUGHLINGS JACKSON, M.D.

RIZZOLI ON A CASE OF TRANSCRANIAL ARTERIO-VEINOS ANEURISM.*

After rapidly passing in review all that has been written on the subject of the aneurisms of the arteries of the head from the time of Morgagni to the present day, and pointing out the possible utility of auscultation in the diagnosis of intracranial aneurism, Dr. Rizzoli relates the following case.

The subject was a girl who, for the first eight years of her life, had not suffered from any disease of importance, nor, so far as her parents were aware, had ever fallen or received a blow on the head. When she was eight years old, in September, 1872, she was for some hours in the open air with her head uncovered, exposed to the burning rays of the sun. When she returned home in the evening, she felt giddy; a little later she complained of severe pain in the head, which was soon followed by repeated vomiting, and by convulsions in which she fell to the ground in a state of complete unconsciousness. She remained in this state for some days, but gradually recovered, and was apparently as well as before. At the end of a fortnight, however, a similar attack occurred; this subsided, and was followed by others at intervals of fifteen or twenty days. It was not until three months after the first attack, that the mother accidentally observed a small tumour in the occipital region of the little patient. The tumour went on increasing, but the parents did not take particular notice of it; and it was not until April 23, 1873, after a very severe paroxysm in which they feared that she would die, that they brought her to the hospital in Bologna, and placed her under the care of Professor Rizzoli.

On admission, she was found to be well developed for her age, intelligent, and docile. The head was rather large; the skull was thin (as was ascertained by percussion); the parietal and frontal protuberances were well developed, especially the former. A tape carried over the head, from the apex of the glabella to the junction with the spine, measured $14\frac{1}{2}$ inches; and from one mastoid process to the other $15\frac{3}{4}$ inches. The circumference of the skull was $21\frac{1}{4}$ inches. The left pupil was a little more dilated than the right. There was slight convergent squint of the left eye. The lips were directed rather obliquely from left to right, and from below upwards, chiefly in laughing and speaking. The tongue was movable in all directions, but deviated somewhat to the left. Sensation was more perfect in the right limbs than in the left. The muscles of the left side were less developed and weaker than those of the right. In walking at an ordinary pace, she crossed the legs a little, turning the foot in-

wards; but this was not observed when she walked quickly.

In the occipital region, below the lambdoid suture, was seen a pulsatory semi-elliptical tumour, having the convexity directed upwards, and the two extremities downwards. Commencing two finger-breadths to the left of the middle line, it reached on the right nearly as far as the mastoid process, being about $3\frac{3}{5}$ inches long, and $1\frac{1}{2}$ inches broad at its widest part. The skin over it was sound, and well covered with hair. The pulsations of the tumour were visible to the naked eye, especially at its most prominent part. On applying the finger to it, a thrill was felt, like that perceived in cases of cirsioid aneurism. On applying pressure, this thrill diminished; and it disappeared entirely if the pressure were increased.

By direct or mediate auscultation, there was perceived in the middle (most prominent) part of the tumour a rather strong expansive bruit, diminishing in intensity as the ear was carried more forward. This murmur was isochronous with the beating of the heart and the pulse in the large arteries; it almost always ceased, and the size of the tumour was diminished, when the left carotid artery was compressed; no change was produced by compressing the right common carotid, even strongly; and sometimes a scarcely perceptible murmur remained when the left common carotid was compressed. On applying pressure simultaneously to both carotids, all bruit ceased; when the pressure was removed from the left carotid the tumour again swelled up and pulsated, and the blowing sound was again heard in it and in the interior of the skull. In the part corresponding to the tumour, on the right and left, the occipital bone was notably hollowed inward, while in the centre, a little towards the right, was a nearly circular hole about $0\cdot68$ inches in diameter. No change was produced in the tumour by coughing, or by deglutition or respiration. On firmly pressing it, no pain was felt.

From these signs, Rizzoli diagnosed an aneurism passing through the occiput and communicating with the interior of the cranium, and covered externally by cirsioid dilations of the occipital artery. Professors Brugnoli, Taruffi, Vella, and Verardini, agreed in this diagnosis. To attain greater certainty, however, a steel pin was introduced; the point entered a cavity in which it could move freely in all directions, and its removal was followed by the escape of a few drops of blood. Subsequently, the cannula of a Pravaz's syringe was introduced into the cavity, when a little arterial blood was found to escape.

The signs already described indicated that the tumour was an aneurism of a branch of the left carotid artery. The fact that cerebral symptoms had been present before the child's mother had noticed the tumour, led to the supposition that the meningeal branch was affected, and that the aneurism in its growth had produced erosion of the bone from within outwards. This idea was supported by the fact that Begin and Krimer had in two analogous cases found the bone perforated by the tumour, and that Giraudet admitted the probability of erosion of the bone in similar cases.

But, on making a more careful examination, Rizzoli found that, when he made pressure a little to the right of and below the above-mentioned hole, on a rather large serpentine arterial twig, all pulsation and bruit ceased both in the aneurism and in the

* *Memorie dell' Accademia delle Scienze di Bologna*, serie iii. tomo iv. The present article is taken from an abstract in the *Gazzetta delle Cliniche* for February 10 and 24.

cranium, the tumour at the same time becoming empty. Here, then, was the arterial branch from which the aneurism sprang; but it lay to the right, and the pulsations of the tumour were arrested by compressing the left carotid artery. Remembering, however, that arterial ramifications, when they become cirroid, spread extensively, Rizzoli was of opinion that the aneurism arose from a branch of the left occipital artery, which reached beyond the middle line.

The fact that the aneurismal bruit could be heard within the cranium might be explained, not only by the thinness of the walls, but perhaps by the aneurism being in communication with an intracranial venous sinus. As, however, the tumour had not the special characters of an arterio-venous aneurism (according to Holmes, a continuous soft murmur, interrupted by an intermittent arterial sibilus) Rizzoli refrained from expressing an absolute opinion.

The symptoms of paralysis and other morbid phenomena which had attacked the child, and had increased so much as to threaten her life, were apparently independent of the aneurism, as they appeared before the tumour was discovered, and no inconvenience was produced by compressing it.

On May 9, the patient had nausea, with attempts at vomiting, pains in the head, and weakness. These symptoms passed off in the evening, but returned in greater force the next day, and were accompanied with paleness of the face and restlessness; the aneurism pulsed more strongly than usual. This condition continued on the 11th, and on the morning of the 12th she felt well enough to rise from bed, but was immediately obliged to return. She complained of a tingling sensation in the left limbs. In the evening there was fever, with a temperature of 103.28 ; pulse strong, 100. The febrile state continued on the 13th, and on the 14th there were general tremor, inability to seize or hold anything with the hand, and very severe pain in the head. On the 15th she had a severe paroxysm of convulsions; the eyes were open and turned to the right, the pupils dilated, the head erect, the limbs bent, the pulse frequent, small, and intermittent. She did not answer questions, and did not feel the prick of a pin. A few minutes after the attack had passed off, she was covered with a profuse sweat, and appeared stupefied. On the 17th she had two convulsive attacks, with an interval of six hours, the second being very violent; and the convulsions again occurred on the next day. On the 19th there was total loss of vision, with extreme dilatation of the pupils and convergent squint. Left hemiplegia, meteorism, and retention of urine followed, and she died in three days.

At the necropsy, which was made by Professor Taruffi, the lateral ventricles were found much dilated, and filled with a transparent fluid. The walls of the right lateral ventricle were softened and diffuent anteriorly. The anterior part of the right optic thalamus was softened, as was also the right cornu Ammonis. Neither on nor in the softened parts were there any hæmorrhagic points, such as generally accompany cerebral softening. In the right lobe of the cerebellum, the meninges were closely adherent to the brain-substance over a large circular tract; the surface was slightly raised with ecchymoses. This portion of the cerebellar substance, having about the size of a small hen's egg, was very resistant under the knife; under the microscope it was found to be formed of bundles of nerve-fibres, and had the appearance of a neuroma. On

the internal surface of the occipital bone, the left arm of the osseous cross was lower than the right; and to the right of the point of union of the ascending with the left branch, was an aperture passing through the entire thickness of the skull; it was nearly circular, having a diameter of 0.27 inch within, and 0.68 inch externally. By this aperture, the cavity of the aneurism communicated with the interior of the skull. To the left of the crucial eminence, below the origin of the transverse arm on this side, was a small lacuna in the bone, with a nearly circular border about 0.12 inch in diameter. The two transverse sinuses of the dura mater, the right of which was larger and lay higher than the left, were perforated at their origin; the left, which presented the smaller aperture, opened into the lacuna, and the right into the aneurismal sac. On tracing the occipital arteries, it was found that the left, in place of diminishing, became gradually larger and tortuous, especially opposite the external occipital protuberance, and that a large tortuous branch proceeded to the right, anastomosing with small ramifications of the right occipital artery. This branch opened beneath the pericranium into the above-mentioned aperture, the pericranium forming the outer wall of the aneurismal sac, while the inner was formed by the bone around the aperture and by the right transverse sinus, with which the aneurism communicated through the aperture.

From this it results:—1. That the profound and various lesions found in the cerebrum and cerebellum were the cause of the symptoms and of death; 2. That the diagnosis of the aneurism was in all respects correct.

Professor Rizzoli discusses the question whether the aperture in the occipital bone was formed from within, by the pressure of the blood escaping from the transverse sinus after its perforation, or from without, by the pressure of the aneurism. The first hypothesis was favoured by the study of other tumours containing blood and communicating with the sinuses, which may be produced in various modes. Taking into consideration the known facts, and the existence of the small lacuna in connection with the left transverse sinus, there would seem no doubt that the erosions were produced by the blood in the sinuses.

On the other hand, the greater diameter of the aperture externally than internally, and the presence of a depression on the outer surface of the occipital bone, produced by the cirroid branches of the occipital artery, indicated that the erosion commenced from within, and was completed from without by the cirroid vessels and by the aneurism.

He remarks that, had there not been in this case indications of incurable cerebral disease independent of the aneurism, he might have hoped to treat the latter successfully. Hodgson refers to cases of intracranial aneurism, in which spontaneous cure took place; and Consolini successfully treated a circumscribed traumatic aneurism of the meningeal artery by digital compression of the carotid. Cases of cure of aneurism and wound of the occipital artery are also known.

Having briefly noticed some cases of cure of aneurism of the occipital artery, Professor Rizzoli gives the history of a case which came under his notice towards the end of 1870. The patient, named Cesare Braggia, received a rather deep wound in the left mastoid region, by being struck with a knife from behind; the wound was directed obliquely from above downwards towards the first cervical arteries; there was

much hæmorrhage, which was nearly arrested. He was taken to the hospital, where Dr. Barbieri applied adhesive plaster and a compress over the wound, thus entirely arresting the bleeding. The patient returned home, where he was under the care of Dr. N. Vecchi. On removing the dressing on the third day, the wound was found completely cicatrised, and a large patch of ecchymosis extended along the posterior margin of the sterno-cleido-mastoid muscle. The next day there was perceived under the cicatrix, a roundish prominence as large as a small nut, which pulsated isochronously with the radial artery. Dr. Vecchi then sent the patient into hospital, under the care of Dr. Rizzoli. On examination, the latter found the tumour above described, lying behind the base of the mastoid process, and pulsating visibly to the naked eye. A thrill was perceived on palpation, and a prolonged and expansive blowing murmur on auscultation: the pulsation and bruit ceased, and the tumour diminished, on compressing the left carotid artery at its bifurcation. This did not occur when the vertebral artery was compressed. The diagnosis was, circumscribed traumatic aneurism of the left occipital artery. After direct pressure on the artery by means of a linen compress and a bandage had been kept up for twenty-four hours, the left common carotid being also compressed with the finger at intervals during the same time, the tumour was found to be smaller, hard, and scarcely pulsating. By continuing this treatment for five subsequent days, a complete cure was produced.

The author finally refers to two cases of wound of the occipital artery treated successfully. In the first, there was a lacerated and contused wound in the occipital region, with profuse external hæmorrhage; this was stopped at the time by strong direct compression, but returned several times, and was finally arrested by acupressure. In the second case also, the hæmorrhage was arrested by acupressure. Both patients completely recovered. A. HENRY, M.D.

FORENSIC OPHTHALMOLOGY.

ON INJURIES OF THE EYE IN THEIR MEDICO-LEGAL RELATIONS. BY PROFESSOR ARLT, OF VIENNA.*

(Continued from page 242.)

7. *Laceration of the Iris* as a result of contusion of the globe generally occurs at the ciliary border; it may be so slight as to be scarcely perceptible, or there may be total separation of the ciliary body. The iris is rarely lacerated at the same time in a radiating direction (from the pupil to the ciliary border), and still more rarely is the blood in the chamber traced to small fissures confined to the pupillary edge, or to clefts between the radiating fibres of the iris.

After partial separation of the ciliary border (iridodialysis) the sphincter meets with no resistance from the radiating fibres at the injured part; and the pupil assumes a form which may be simply described as kidney-shaped. This deformity is sometimes the only sign that slight separation has taken place. If the aperture of the iris be not too small, ophthalmoscopic examination discovers a

refraction of red light from the fundus of the eye, if the media be transparent. More extensive separations manifest themselves by the formation of an aperture at the periphery (a second pupil). When there are large apertures having this origin, the natural pupil may be reduced to a small cleft or altogether obstructed.

After total or nearly total separation, the iris contracts into a small ashy grey membrane.

Radiating lacerations produce a true coloboma; the one or the other limb of the separated iris may be drawn against a laceration in the sclerotic, or may lie on the capsule in the neighbourhood of the natural pupil, and become adherent to it through inflammation. I have seen a case where, in consequence of a blow on the globe in the neighbourhood of the insertion of the right inferior rectus, the iris was separated in its upper third from the ciliary process, and at the same time divided perpendicularly from the middle of the separated ciliary border to the pupil.

Prognosis.—Laceration of the iris is of importance in relation to vision only when the natural pupil is much dilated, or when a second pupil is formed, and is so large and so situated as to give rise to double vision with the one eye. There may also be more or less extensive deformity. Extensive iritis is not caused.

Treatment.—This inquiry does not call for any special treatment beyond rest and protection of the eye, and cold applications at first. The blood will be removed slowly; yet the advice to use spirit lotion with tincture of arnica is not to be altogether set aside. It is unnecessary to open the chamber to remove the blood in simple hæmophthalmus anterior; it is only when there are signs of hæmophthalmus posterior (impaired perception of light and increased tension), and absorption is slow, that the blood may be carefully and slowly evacuated from the chamber.

8. *Bursting of the Choroid.*—Frequently only one vessel is affected, and the effusion is limited to the parenchyma of the choroid; or the blood is effused between the sclerotic and the choroid (in large quantity only after injuries in which the globe is at the same time laid open); or it presses on the affected part of the choroid, and breaks through it into the vitreous body. In a higher degree of bursting, there is seen to be laceration of the choroid to a greater or less extent in several parts.

Diagnosis and Prognosis.—More or less numerous and extensive effusions of blood in the tissue of the choroid have been observed after contusions of the globe, but without evident change; in themselves, they do not interfere with vision. Reactive inflammation, however, may set in, and the retina may become implicated. The effusions can only be discovered by the ophthalmoscope, and appear as red spots or points. In many cases (and this occurs, according to Berlin, also in small subchoroidal extravasations) the part of the retina lying in front is clouded, but becomes clear in a few days.

Bursting of the vessels of the choroid is of more serious importance when it leads to displacement or laceration of the superjacent portion of retina. If these changes take place in the neighbourhood of the macula lutea, the patient complains of interference with vision; when situated more towards the periphery, with effusion of blood in the vitreous body, they can only be made out by ophthalmoscopic examination of the field of vision. At first, the evi-

* *Wiener Medizinische Wochenschrift*, April 4 and 11, 1874.

dence of injury may be observed by blood in the vitreous or in the aqueous humour. At a later period, the raising or perforation of the retina becomes apparent; but it may still be more or less masked by consecutive obscuration of the vitreous body.

Laceration of the retina of this kind may heal in such a way, that the cicatrix can scarcely be discerned, and no perceptible functional disturbance remains. Even the portions of retina that had been raised may become functionally competent after the absorption of the blood. If, however, inflammation set in, the function of the part may again be more or less impaired through contraction of the cicatrix. Cases of this injury should, therefore, be kept under observation for several, often for many, months.

9. *Lacerations of the Choroid* are chiefly observed in the neighbourhood of the posterior pole, on the temporal side of the optic disc, and, in special circumstances, on the nasal side. The manner in which they are produced has been already explained in section I.

Diagnosis.—At first the cleft is covered in with blood, part of which lies in it, and part escapes into the vitreous body and may even reach the anterior chamber. After clearing of the media, the rents in the choroid are seen at first yellow, afterwards clear white, the light being reflected only from the denuded sclerotic. The edges of the clefts appear for some time red, and at a later period are often strongly pigmented. Over the clefts, the vascular networks are observed to run unchanged, except when they have been torn through by the injury. Along with this, there may be the signs of reactive inflammation in the immediate neighbourhood, perhaps also partial raising of the retina. At a later period, threads of connective tissue often run through the vitreous body in front of the rent, or in its immediate neighbourhood, and allow the rent to be only imperfectly seen.

A laceration of the choroid in the equatorial region or in front of it must be expected, if the globe be struck by a blunt instrument in this region. Hitherto, posterior laceration of the choroid on the nasal side of the optic papilla has been observed only as the result of the impact of a foreign body on the nasal side of the sclerotic. A posterior choroidal laceration on the temporal side of the optic nerve does not exclude an anterior laceration on the same side, if the globe have been pressed towards this side.

In a case related by Stellwag, a blow from a piece of iron on the inner part of the right eye was followed by a double rent of the choroid on the inner side of the entrance of the optic nerve; one portion was as long as two or three diameters of the papilla, and was vertical, while the other, about one diameter in length, ran horizontally, forming a nearly right angle with the upper end of the other. In some parts, irregular laceration of the retina could be seen through the choroidal laceration. Beyond the outer edge of the rent, as far forwards as the ora serrata, the retina was raised in the form of a furrowed vesicle. The vitreous body was slightly obscured. Acuteness of vision was impaired, and there was considerable limitation of the outer circumference of the field of vision.

In a case recorded by Aub as having occurred in Knapp's practice, the left eye of a boy aged fourteen was struck by a piece of wood on the temporal side. Fourteen days afterwards, after full dilatation of the pupil, a hole, running upwards and backwards,

with pigmented edges, was seen at the anterior and outer part of the fundus oculi, at the union between the choroid proper and the ciliary portion. After the absorption of blood which had been effused into the vitreous body, an isolated rupture, having two prolongations upward and three downwards, was seen in the neighbourhood of the macula. At this time the anterior rupture was cicatrising, but its edges were still pigmented.

Knapp figures and describes an eye which was injured a year previously by the discharge of a pistol loaded only with powder. Numerous grains of powder were found in the cornea and sclerotic. The patient could count fingers at the distance of only a foot; the field of vision at the nasal side was much narrowed. With the ophthalmoscope movable opacities, somewhat obscuring the fundus oculi, were observed in the vitreous body. The lower and outer side of the entrance of the optic nerve was environed by a curved white streak; and in the most anterior part of the fundus, also at the lower and outer part, were numerous irregular white spots, which were readily recognised as defects in the choroid, exposing the sclerotic. The larger choroidal and the retinal vessels could be seen entire: at one part, however, the retina was slightly raised in the form of an oval bluish vesicle.

In these three cases, the posterior laceration of the choroid was in the meridian in which the violence was applied to the globe in front. They are opposed to the idea of the laceration being caused by *contre-coup*.

Prognosis and Treatment.—The traumatic reaction may be severe; but on the whole it is slight. The treatment is coincident with that of posterior hæmophthalmus. At a later period, especially when retinitis sets in, it will be necessary to protect from light and to restrain the accommodative function of the other eye; and to regulate the patient's diet.

In most cases, vision is limited to quantitative perception of sight. In some cases, this may be only first discovered after a week or two: cases where vision becomes again nearly or quite as complete as formerly, are exceptional. At the point of rupture, an opaque spot often remains: in some cases, the field of vision becomes more or less limited. This is produced more rarely by laceration of the optic fibres than by reactive inflammation with or without consecutive raising of the retina (through cicatricial contraction). The function of the eye may also be permanently impaired by the formation of connective tissue in the vitreous body.

10. *Concussion of the Crystalline Lens* in consequence of violent blows, &c., or of concussion of the cranium (or of the whole body), very rarely produces bursting of the anterior capsule, except in those cases where the lens is thrown against a rent in the sclerotic. Knapp has observed laceration of the posterior capsule after a blow on the eye; and Aub observed this injury in the case of posterior and anterior laceration of the choroid, described above.

Much more frequent is partial or total stretching or laceration of the zonule of Zinn. Whether concussion of the eye, without either bursting of the capsule or laceration of the zonule, directly produces opacity of the lens, is not determined with certainty; but it is usually assumed that it does so. The fact that Berlin produced opacity of the anterior cortical substance in a cat's eye by a blow with an elastic rod, tends to show that cataract may be a direct result of contusion of the eye.

When unilateral cataract appears sooner or later after an injury in which the eye has suffered contusion, the cataract may occur without lesion of the capsule and zonule, and in consequence of the bursting of the choroid produced by the injury: that is to say, mediately through hæmorrhage and its sequelæ, through reactive choroiditis and retinitis, and through consecutive raising of the retina. It has long been known that, in cases of cataract following contusion, which perhaps the patient only remembers after questioning, there is very often amaurosis or amblyopia, which can only be attributed to injury of the choroid and retina (through the contusion, perhaps also through the penetration of a small foreign body which has escaped detection), and the causal connection between cataract and inflammatory lesions of the choroid, and especially between cataract and raising of the retina, has been determined with certainty in recent times. In a large number of these cases of unilateral cataract, after the history of an injury has been traced out, this mediate production of cataract may be suspected if there be a certain discoloration of the iris, although the fibres remain, and if the pupil be partially or entirely dilated. Synchysis of the vitreous body, when the lens is not displaced, indicates still more distinctly the mediate origin of the cataract. Cataracts following raising of the retina are attended with posterior synechiæ, which are generally unnoticed, being unaccompanied by any remarkable redness of the cornea or by pain. These synechiæ must not be confounded with irregular pigmentary groups in the anterior capsule, which (since Beer) have been found after many injuries, attended with concussion of the globe.

In determining the causal connection in special cases, not only must the globe be examined by palpation, but it is essential to examine the perception of light and the extent of the field of vision. In cataract produced directly and simply through concussion of the lens, the optic structures beyond may remain normal.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

KOWALEWSKY ON THE MOVEMENTS OF THE BILE.—Professor W. Kowalewsky communicated to the fourth meeting of Russian *savants*, held at Kasan, in 1873 (Pflüger's *Archiv*, vol. viii. part II—12), the results of his researches on the doctrine of the mechanics of the movement of the bile. The experiments were performed on curarised cats. He found that: 1. The motive power for the bile is not constant, either in different animals, or in one and the same animal at different times; e.g. the pressure in curarised cats varied from 12 to 20 millimètres of mercury. The different animals showed variations at different times: 12.4—14.1, or 17.5—18.3, or 19—20 millimètres of mercury. 2. These last cited variations depend upon the blood-pressure in the large arteries; such increase of arterial blood-pressure being followed by an increase of the pressure of the bile. A certain time, however, generally elapses before increase of the arterial blood-pressure is followed by a corresponding change in the bile-pressure (estimated by the manometer); the latter is also not the immediate consequence of the former, but depends upon the change in the secretion, or on the

absorption from the bile-passages. 3. The greatness of the resistance to the outflow of the bile into the intestine also varies, even in one and the same animal, in curarised cats. 4. On comparing the greatness of the motive power with the resistance, it is at once observed that a cessation of the secretion of bile, or a retrograde suction under physiological conditions, cannot occur, but a stand-still of the outflow of the bile into the intestine may occur, until the pressure on the walls of the gall-ducts has reached the height of $3\frac{1}{2}$ to $7\frac{1}{2}$ millimètres of mercury. From this moment the bile must flow in drops into the intestine. This latter must occur oftener in fasting animals, for in them the gall-bladder is generally tensely filled. Thereby can be explained the great difference which exists between the bile from the gall-bladder of fasting animals and the freshly secreted liver bile, for with a tensely filled gall-bladder the continually secreted bile must flow into the intestine without previously going into the gall-bladder.

WILLIAM STIRLING, D.Sc., M.B.

BOGOLJUBOW ON THE GASOMETRIC ANALYSIS OF BILE.—Dr. W. Bogoljubow (Inaugural Dissertation, Kasan, 1873) has made comparative gasometric analyses of bile, and found that the quantity of chemically united carbonic acid in the bile from the gall-bladder of fasting animals is almost none, and the quantity of free carbonic acid may fall to two volumes per cent., whilst the fresh bile from the liver, secreted at the same time, contains 64 per cent. of chemically united carbonic acid, and 7 per cent. in the free condition.

WILLIAM STIRLING, D.Sc., M.B.

TROITZKY ON THE EFFECT OF TEMPERATURE ON THE NERVE-CURRENT.—At the meeting of Russian *savants*, in Kasan, 1873 (Pflüger's *Archiv*, vol. viii.) A. Troitzky read a communication on the estimation of the rapidity of the propagation of stimulations in the nerves of the frog at different temperatures and with different intensities of the stimulating current. He has arrived at the following results. 1. With slightly stimulating intensity of the current, the rapidity of the propagation of stimulation in the nerve is at its maximum between 68° Fahr. and 50° Fahr. The rapidity diminishes when the nerve is heated to 86° Fahr., or cooled to 32° Fahr. 2. With stronger currents, the influence of temperature on the rapidity of propagation in the nerves diminishes. The rapidity is more influenced by the strength of the stimulating current than by the temperature. 3. With very strong currents, the influence of temperature disappears completely. 4. The greatness of the rapidity of propagation in nerves depends upon the strength of the stimulation, and stands in direct proportion to the same.

WILLIAM STIRLING, D.Sc., M.B.

NAUMOW AND BELJAEW ON THE EFFECTS OF OXYGEN ON TEMPERATURE AND CIRCULATION.—A. Naumow and S. Beljaew (Pflüger's *Archiv*, vol. viii.) have experimented on the temperature of the body and the rapidity of the blood-current under inspiration of oxygen and atmospheric air. Their experiments on man and dogs showed that the temperature during respiration of oxygen is exactly the same as when atmospheric air is breathed. The number of heart-beats is also uninfluenced by oxygen. The rapidity of the blood-current in the carotids seems, however, to increase under the influence of oxygen.

W. STIRLING, D.Sc., M.B.

NAWROCKY ON THE REFLEX SALIVARY SECRETIONS.—F. Nawrocky, of Warsaw, read a communication at the meeting of Russian *savants*, in Kasan, in 1873 (Pflüger's *Archiv*, vol. viii.), on the reflex salivary secretion. Within the last few months two papers (Owsjannikow and Tschirew, Grützner and Chlapowsky, abstract of both in *Journal of Anatomy and Physiology*, vol. viii. 183) on this subject have appeared, which add a new fact to the doctrine of the reflex secretion of the saliva: viz., occurrence of the salivary secretion on stimulation of the sciatic and auricular nerves. On repeating these experiments, Nawrocky and L. Rklicky obtained results which completely coincide with the prevailing doctrine of reflex salivary secretion, and show that such a secretion is only caused on stimulation of the lingual and glossopharyngeal nerves. When these authors, sometimes, in the case of dogs, observed the saliva to flow rapidly from the duct on stimulation of the sciatic nerve, this occurred only at the beginning, immediately after the stimulation, and in such quantity as warranted them in presuming that it was previously formed, and was pressed out of the gland through the increased blood-pressure. Afterwards, the outflow ceased entirely, or, in the case where salivation occurred already before the stimulation (which is not rare in dogs), the secretion was not more copious during than before the stimulation. W. STIRLING, D.Sc., M.B.

ARNSTEIN ON THE NERVES OF THE DIGESTIVE CANAL.—Professor C. Arnstein (of Kasan) communicated (*ibid.*) the results of Gonjaew's experiments made in his laboratory, on the nerves of the digestive canal.

1. Ganglion-cells occur in considerable quantities in the walls of the œsophagus of the frog.

2. The nerve-stems of the mucous membrane of the œsophagus of the frog lie generally in lymph-spaces. The fine nerve-fibres, devoid of the white substance of Schwann, which branch from these nerve stems, run within the *Saftcanäle* between the bundles of connective tissue.

3. A thick net of non-medullated nuclei containing nerve-fibres is distributed in the mucous membrane of the œsophagus of the frog. From this net, fine nerve-fibres branch off and ascend vertically in the direction of the epithelium, and can be followed to the interstices between the epithelial cells.

4. The nerve-fibres of the mucous membrane of the stomach and intestine of the frog arise from nerve-bundles, which often pierce the muscular coat in company with small arteries. In their further course, two principal directions are to be made out. Part of the fibres ascend vertically from the deeper layers of the mucous membrane and reach the epithelium of the mucous layer. In this course, they give fine threads to the gastric and intestinal glands. A connection between the nerve-threads and the epithelial structures could nowhere be made out. The other part of the nerve-fibres of the mucous membrane ascend at first in the form of an arch, and later have a direction parallel to the surface of the mucous membrane. In that the above named bendings occur at different heights, so that on a vertical section there appear three or four parallel rows of nerve-fibres. These nerve-fibres are destined for the capillary vessels of the mucous membrane, and form, on making sections parallel to the surface, long drawn out nets around the blood-vessels; single

nerve-threads touch, in a radiating manner, the walls of the capillaries. W. STIRLING, D.Sc., M.B.

KOWALEWSKY AND WYSSOTSKY ON AIR IN THE BLOOD-VESSELS.—Professor N. Kowalewsky and N. Wyssotsky (in Kasan), communicated (*ibid.*), the results of a series of experiments upon the physiological action of the injection of air into the blood-vessels. The experiments were made upon curarised dogs and cats, in whom artificial respiration was kept up. The air was introduced into the blood-vessels by means of a graduated syringe. The following are their results.

1. A very considerable quantity (200 cubic centimètres, and more in the dog) of air can be injected into the external jugular vein in the direction of the heart without disadvantage, when the injection is not completed at once, but only small quantities are introduced at a time.

2. Much smaller quantities (12 cubic centimètres for the cat, 14 or less for the dog) injected at once, are sufficient to kill the animal.

3. With each injection of a small quantity of air into the central end of the external jugular vein, sinking of the arterial blood-pressure, with acceleration of the heart's action occurred. Afterwards, the pressure rose above the normal; then followed a succession of wave-like variations of the blood-pressure with periodical retardation of the pulse (excitation of the vagus) on the height of each wave; lastly, return of the circulation to the normal. These phenomena point to a temporary difficulty in the passage of the blood from the venous into the arterial system (sinking of the blood-pressure), and to a disturbed exchange of gases in the blood (the consequent increase of pressure and the waves as the result of the stimulation of the vaso-motor centres). On dissecting an animal into which large quantities of air had been injected gradually, either none or very little air was found in the left side of the heart and arteries, but it was found in the right heart and in the pulmonary arteries, though the amount was much less than was injected.

4. If a considerable quantity of air be injected at once into the jugular vein, in the direction of the heart, then the arterial blood-pressure falls to the height of the pressure of the stationary column of blood, and death follows. The phenomena in the circulation resemble the effects of ligature of the vena cava inferior. Death follows, because the blood is prevented from passing from the veins into the arteries, in consequence of the formation of considerable quantities of froth in the right side of the heart. The cause of death is an arterial anæmia (notwithstanding that the action of the heart continues for some time).

5. Injection of about 12 cubic centimètres of air into the carotid towards the brain produces a marked increase of pressure in the arterial system, as an expression of the stimulation of the vaso-motor centre, in consequence of arterial anæmia. After a time the circulation returns to the normal, and a second injection of air, this time into the peripheral end of the carotid, may have the same phenomena as results. If the animal be dissected after such a repeated injection, air-bubbles are found in the vessels of the pia mater, in the venous sinus of the dura mater, in the right heart, and in the pulmonary artery; whilst in the left heart and in the great arteries of the systemic circulation, scarcely any air is to be found.

6. Experiments in which frothy (shaken with air)

defibrinated blood is injected through the pulmonary artery of the excised lungs, as well as the *post mortem* examinations of the experiments described in no. 5, show that the pulmonary and central capillaries do not present any unsurmountable resistance to the blood charged with air-bubbles. The hindrance to the blood-current in the capillaries is, if present at all, only temporary. Beyond that, we know from examination of the bodies of animals after the experiments made under 3 and 5, that the air, on its way through the lungs, may disappear from the blood-vessels (transpiration?). The danger of the entrance of air into the veins does not consist in the formation of capillary embola in the lungs or brain, but in the production of a considerable quantity of froth in the right heart, whereby a mechanical hindrance to the normal circulation and its consequences—anæmia of the aortic system—is produced.

WILLIAM STIRLING, D.Sc., M.B.

SKWORZOW ON THE HISTOLOGY OF THE HEART AND ITS COVERINGS.—Dr. J. Skworzow thus groups together (*ibid.*) the results of his researches on the histology of the heart and its coverings.

1. The heart, together with its pericardium, in mammalia, is richly provided with lymphatics. The ventricles, auricles, and the pericardium proper, each possesses its independent system. The lymphatics of the pericardium can be filled by puncture (*Einstich*), when the cannula is introduced between the serous and fibrous layers. This succeeds most easily in the heart of the calf.

2. Henle's intermuscular spaces (*Spalträume*) in the cardiac muscles, are lymph spaces, which empty themselves into the subserous lymphatics on the surface of the heart.

3. The proper serous layer of the exocardium and pericardium is very poor in lymphatics and blood-vessels; the greatest portion of these lies in the tissue which unites the serous with the underlying layers.

4. Vertical lymph-spaces (*Lymphträume*) penetrate through the serous layer, and unite the cavity of the pericardium with the subserous network of lymphatics.

5. The above described lymph-spaces do not permit the fine particles suspended in the injection-mass to pass in the direction of the cavity of the pericardium, but easily in the opposite direction (see the experiments of Schumkow described below).

6. The outer and inner surfaces of the heart, or more correctly the serous layers which cover these, are richly provided with sensory nerves, which, as it appears, end in the form of a net, immediately underneath the epithelium. These nets of nerve-fibres are provided with cell-like enlargements containing nuclei.

7. In the proper heart-muscles of mammals and of the frog, no ganglion-cells exist (this is contrary to Remak's statement).

8. The chief masses of ganglion-cells lie in mammals in the septum auricularum (similarly in the frog) and at the mouths of the arteries. Beyond these, a number of ganglion-cells are found in the fatty tissue of the sulci, especially in the transverse furrow.

9. Absorption from the pericardium, as well as from other serous cavities, is provided for by stomata, which lead into the lymphatics.

10. The formation of stomata is caused by a distinct tendency of the endothelial-cells to gradually

assume a curved and circular arrangement; the cells towards the centre become atrophied by pressure, and stomata are formed.

11. The completely formed stomata appear when treated with silver, as black specks, which lie in the centre of the radially arranged endothelium.

12. The endothelial cells of the cavity of the pericardium are very various in form and size, and show a great tendency to the proliferation of nuclei and cells. The endothelium appears to be a self-reproducing structure.

13. The existence of connecting substance (*Kittsubstanz*) between the endothelial cells is problematical. It is probable, that the dark lines, which appear at the margins of the cells on treatment with nitrate of silver, represent little drains or gutters for the serous fluid.

14. The *Saftkanälchen* of Von Recklinghausen are artificial products of the treatment with silver.

15. The mother-substance (*Mutterboden*) for the lymphoid corpuscles of the serous fluids is most probably endothelium.

WILLIAM STIRLING, D.Sc., M.B.

NAWALICHIN ON THE LYMPHATICS OF THE THYROID BODY.—J. Nawalichin (of Kasan) thus sums up the results of his researches on the lymphatics of the thyroid body. The glandular follicles of the thyroid are not limited directly by the stroma of connective tissue, but are separated from the latter by lymph spaces, so that each follicle lies in a lymph lacuna. The blood-vessels of the gland are surrounded by similar spaces, which are, however, drawn out lengthwise. By injection through the puncture (*Einstich*) method, the mass is poured out around the glandular follicles and around blood-vessels which lie in the stroma; it then collects under the connective tissue capsule of the gland, and penetrates lastly into the lymphatics which escape from the hilus, and are connected with the lymphatics lying above and below. On injecting a solution of nitrate of silver (0.5 per cent.), the above described lymph-spaces of the thyroid are lined with a single layer of epithelium. The blood-vessels lying within the lymph-spaces are also covered with such epithelium. From this Nawalichin concludes that the lymphatic system of the thyroid is a perivascular one. According to Nawalichin, the thoracic glands possess a similar lymphatic system.

WILLIAM STIRLING, D.Sc., M.B.

SCHUMKOW ON FILLING OF THE LYMPHATICS OF THE PERICARDIUM.—J. Schumkow describes (*ibid.*) his experiments on filling in a natural manner the lymphatics of the pericardium. The first thing to do in the natural injection of the pericardial lymph-vessels is to empty them of their contents, because the presence of the latter, through the formation of precipitates with the watery solution of Prussian blue employed, causes unsurmountable resistance to the absorption of the mass. The pericardium and heart having been removed together, a solution containing 6 per cent. of chloride of sodium is introduced through an opening made in the lower part of the pericardium, and, when the cavity has been thoroughly washed out, the whole preparation is gently pressed in a wet towel. Into the cavity of the pericardium, thus washed, a certain quantity of solution of Prussian blue is introduced through the above-mentioned opening. A cannula is tied into this opening, and the preparation is inverted with

the base of the heart looking downwards. The last task in the injection consists in the imitation of the physiological variations of the negative pressure within the pericardium, caused by the movements of the heart and respiration. This is accomplished by rhythmical suction-movements, produced by applying the mouth to the cannula. In this way, there appear at first on the inner surface of the pericardium, tolerably parallel blue lines; then there come into view in the deeper layers of the pericardium, branches running at right angles to the first-named twigs; and lastly, on different portions of the outer surface fine networks, characteristic of lymphatics, become visible. These nets become united with larger stems provided with visible valves, and are in connection with the neighbouring lymphatics lying near the base of the heart. These injections are most successful on the heart of the calf and of the dog.

WILLIAM STIRLING, D.Sc., M.B.

NAWALICHIN ON THE VASO-MOTOR SYSTEM.—Dr. I. Nawalichin (of Kasan) communicated (*ibid.*) the results of some experiments relative to the vaso-motor system. He investigated the point whether the vaso-motor phenomena occur simultaneously, and with relatively equal strength, in all parts of the arterial system. Simultaneous measurements of the blood-pressure were made in peripheral portions of two arteries; in the case given, the carotid and femoral. Curarised dogs and cats were employed. The vaso-motor phenomena were produced either reflexly or directly by irritation of the vaso-motor centre. The reflex actions were produced either from the vagus or from the sciatic nerve. Direct stimulation of the nerve-centre was produced either through a diminished supply of arterial blood to the same (compression of both carotids), or through disturbed arterialisatation of the blood (interruption of the respiration.) The following were the results.

1. Central stimulation of the vagus nerve generally produces a pronounced change in the blood-pressure in the peripheral portion of the carotid, which consists in an increase or diminution, without there being a corresponding change of the pressure in the peripheral end of the femoral artery. It sometimes happens that, during the increase of blood-pressure in the carotid, the pressure in the femoral sinks.

2. Central stimulation of the sciatic nerve causes in the majority of cases an increase of pressure in the carotid, but not in the femoral. Cases occur where the pressure in the femoral also rises, but the maximum occurs later than in the carotid.

3. Occlusion of both carotids (in cats) causes an increase of pressure sometimes in the one, sometimes in the other system.

4. Interruption of the respiration increases the blood-pressure in both systems; the increase, however, begins sooner in the femoral, increases equally and lasts longer, so that the maximum pressure in this vessel is absolutely and relatively greater than in the carotid.

The above facts show that the changes in the different vessels caused by the vaso-motor system are not only unequal with different forms of stimulation of the centre, but that they are also not simultaneous with the same mode of stimulation; and that they may be of different strength, and may even run in opposite directions. This is true not only of different animals, but also of one and the same animal, at different times.

WM. STIRLING, D.Sc., M.B.

SPIRÒ ON INNERVATION OF THE GLOTTIS IN THE FROG.—Dr. P. Spirò (Odessa) read (*ibid.*) a communication on the innervation of the glottis in the frog. The chief results of the experiments described in his paper are the following.

1. The reflex centre for the muscles of both valves of the glottis lies in the lower two-thirds of the medulla oblongata, and the one for each valve lies in the corresponding half of the medulla. If the medulla be divided at the upper limit of the above named region, the play of the valves ceases, although a peripheral stimulation produces a single opening of the glottis.

2. A continued peripheral stimulation (stimulation of the sciatic nerve with a weak induced current) produces a rhythmical play of the valves.

3. The normal rhythmical action of the glottis depends upon the middle portions of the brain. This dependence can be explained by supposing either that from the parts named, under normal circumstances, periodic impulses proceed for the action of the reflex centre of the glottis, or that the portions of the cord lighten somewhat the work of the reflex centre. That the reflex centre can act rhythmically alone and for itself has been shown; the second possibility is therefore the more probable one.

4. If the medulla be divided into two halves by a longitudinal section, the normal play of the valves remains undisturbed.

5. When the vertical section is prolonged upwards to the thalami optici, there occurs a complete disturbance in the co-ordination of the movements of the valves. The rhythm of the play of the valves on the two sides becomes quite different. These experiments seem to show that the co-ordinating centre for the valves is placed in the mid-brain.

6. When, however, a longitudinal section is carried through the upper third of the medulla and through the whole brain, whilst the lower two-thirds remain intact, no disturbance in the co-ordination occurs. The simplest explanation of the last three experiments would be that the connection between the reflex centre for both valves lies not only in the medulla oblongata, but also in the mid-brain as far as the thalami optici. The rhythmical motor apparatus of the glottis has two accessory arrangements in the brain; one has an inhibitory action, the other an exciting one. The former lies chiefly in the lower two-thirds of the hemispheres, the second predominates in the corpora quadrigemina.

7. A section through the lower third of the hemispheres restrains the movement of the glottis. The same follows the beginning of the stimulation of this spot by means of chloride of sodium or weak currents, as well as by stimulation of the optic thalami with weak induced currents.

8. The first effect of section and stimulation of the corpora quadrigemina consists in an acceleration of the movements of the glottis. Very weak induction-shocks produce only an acceleration; somewhat stronger currents cause accelerated and stronger movements, which ultimately pass into a continued opening of the glottis.

9. If the above stimulation be proceeded with, then there follows, after the period of increased activity, an interval of rest, which gives place to an increased activity, then follows rest, and so on.

The experiments on the influence of continued stimulation of the sciatic nerve led to the following results.

10. A weak induced current produces a very transient acceleration.

11. The medium current yields the same effect as a continued stimulation of the middle portions of the brain (9).

12. The first effect of a strong current consists generally in a diminution of the activity of the glottis.

These experiments with stimulation of sensory nerves were made in two ways : on animals with the middle portions of the brain uninjured ; and on those in which the section described under 1. was made.

Experiments on rabbits, with stimulation of the sciatic nerve, the brain being intact, have yielded the author similar results.

WILLIAM STIRLING, D.Sc., M.B.

MATERIA MEDICA AND THERAPEUTICS.

PROUT ON AN ABORTIVE TREATMENT OF CORYZA.—Dr. J. S. Prout (*New York Medical Record*, Jan. 1, 1874) recommends the tincture of the chloride of iron for this purpose. He states that he has often been able to arrest the disease in his own case, and in that of his patients, by the administration of twenty to thirty minims of the tincture as soon as possible after the cold is 'caught.' He usually finds that, in about half an hour, there is a decided amelioration of the symptoms, and in case the improvement is permanent he gives no more, but if it does not pass off in two or three hours, he repeats the dose, if necessary, three or four times. A convenient form for prescription is : R. Tinct. ferri chloridi, glycerin., aa. $\mathfrak{z}\text{iv}$. Mix. One tablespoonful in a wineglassful of water.

LEVIS ON CARBOLIC INJECTION OF HYDROCELE. Dr. Levis (*Philadelphia Medical Times*), says : The most popular method for the radical cure of hydrocele is the injection of stimulating fluids into the vaginal tunic, after the withdrawal of the serous effusion by the trocar. Of the various injecting fluids proposed, tincture of iodine is most generally employed at the present day ; but it often fails to produce the inflammation requisite for the obliteration of the sac, and occasionally induces too much inflammatory action. Dr. Levis prefers carbolic acid for the injecting material, and in a case which he describes used one drachm of a mixture of equal parts of carbolic acid and glycerin.

The injection of carbolic acid seems, from other cases to which it has been applied, to fulfil the conditions most admirably, producing sufficient inflammatory action to secure adhesion of the walls of the sac, and giving little or no pain to the patient, either at the time of its introduction or subsequently. This freedom from pain is probably due to the local anæsthetic effect of the carbolic acid, for it is well known that, if this article be placed upon the skin, the surface can be scarified with a knife without pain.

KITCHEN ON NITRITE OF AMYL IN SPASMODIC ASTHMA AND ACUTE BRONCHITIS.—Dr. Daniel H. Kitchen (*American Journal of Insanity*, October, 1873) has employed nitrite of amyl with great success in the paroxysmal cough and dyspnoea of acute bronchitis, and in the suffocative attacks of spasmodic asthma. He gives it by inhalation, in doses of from six

to fifteen drops, poured into a small cup-sponge and applied immediately to the nose, the mouth being kept shut. He believes its beneficial effect to be due partly to its sedative action on the muscular system through the motor nerves, and partly to its power of diminishing blood-pressure and causing contraction of the capillaries. He details four cases, in all of which a variety of other remedies had been unsuccessfully tried, and in all of which nitrite of amyl gave prompt and entire relief.

CONNER ON AROMATIC TINCTURE OF ASSAFÆTIDA.—Mr. L. Myers Conner says, in the *American Journal of Pharmacy*, that this tincture has such an unpleasant smell and nauseating taste, that it cannot be given in every case required. Frequent requests of physicians to prepare a tincture that would be more pleasant to the taste, and produce the same effect without the addition of water, have induced him to make some experiments. The formula offered has been tried, the aromatics being no objection, either in properties or preparation ; it can be made at any time, also keeps well.

R. Tincture of assafœtida, U. S. P. $\mathfrak{z}\text{viij}$.
 „ orange peel $\mathfrak{z}\text{ij}$.
 Essence of peppermint $\mathfrak{z}\text{ij}$. M.

Dose, one and a half to two fluid-drachms, without the addition of water.

FORMULARIES.

VEHICLE FOR THE ADMINISTRATION OF CHLOROFORM.—A French medical journal remarks that the best course is to dissolve the chloroform in glycerine (1 in 3), which is effected with tolerable facility, and gives a very clear solution, pleasant to the taste, and with a strong odour of chloroform. This solution can be mixed in all proportions with water without the occurrence of any precipitation, though the odour is distinctly perceptible. In forming the mixture, it is well to add the chloroform slowly, and to mingle the two thoroughly. It should be left at rest for twenty-four hours ; at the expiration of this period a portion of the chloroform will be found to have collected at the bottom of the vase ; this should be separated and mixed with an additional part of glycerine, when no further separation will occur. This mixture may be kept for some time without any loss of chloroform by evaporation.

TO DISGUISE CASTOR OIL.—A writer in a Canadian Pharmaceutical journal, recommends for this purpose the following formula :—

R. Ol. ricini $\mathfrak{z}\text{j}$.
 Ol. anisi gtt. x.
 Chloroform gtt. x.

Shake well together ; then add

Mucil. acaciæ $\mathfrak{z}\text{ij}$.

Shake well, and make up with a sufficiency of water.

Mr. Gregory, in the *American Journal of Pharmacy*, says :—

For some twelve or fourteen years past I have used the following formula for a castor-oil draught, which has proved very acceptable to adults who could not get down the pure oil. For children it does not answer so well, the dose of necessity being double that of the oil :—

R. Ol. ricini $\mathfrak{z}\text{j}$.
 Mucil. acaciæ $\mathfrak{z}\text{ij}$.
 Shake well together ; then add
 Syr. simp. $\mathfrak{z}\text{ij}$.

RAW BEEF IN DYSENTERY.—In cases of chronic diarrhoea for which a diet of raw meat is recommended, the following formula may be found useful:—Take beef reduced to pulp, mix this with rum, brandy, or whisky enough to make into a soft mass, to which may be added, according to the patient's taste, either salt or sugar; several spoonfuls to be taken during the day.

OBSTETRICS AND GYNÆCOLOGY.

THOMAS ON THE USE OF A DRAINAGE-TUBE IN OVARIOTOMY.—Professor T. G. Thomas, in some clinical remarks on a case of ovarian disease (*Philadelphia Medical Reporter*, January 31) says:—‘To-day I furnish the report of the case of ovarian tumour brought before you three weeks ago. I withdrew some of the fluid with a hypodermic syringe, and found it to be clear. Last Saturday, at the Woman's Hospital, I removed from this patient a tumour weighing thirty pounds, and another diseased ovary of the size of a hen's egg. This smaller diseased ovary contained several cysts, one much larger than the others, and in a year or so it would have given her a deal of trouble. The method of operating was to cut down on the tumour, introduce a sound and separate any adhesions (the tumour in this case had very extensive attachments), seize the cyst, evacuate it with the hollow trocar, and remove the collapsed cyst. In this case the omentum had to be detached from the wall of the cyst after it was taken out of the abdomen. The pedicle was then secured in a clamp and a glass tube inserted into the abdominal cavity, then the wound sewed up.

‘This tube is of glass, about four inches long and half an inch in diameter, slightly curved. It is carried down behind the uterus, into Douglas's cul-de-sac, and the sutures in the abdominal wound are so applied as to tightly embrace it. In this case, before the operation the bloody serum was welling out of the wound, and we estimated that from it came eight or twelve ounces of fluid.

‘Within twenty-four hours the abdomen was washed out with a basin of water, containing from a dessert-spoonful to a table-spoonful of salt, and enough of carbolic acid to give it a slight smoky taste. The manner of proceeding is this: elevate the head of the bed so as to cause all fluids to drain towards the lower part of the abdominal cavity; then draw up the tube slightly, and into it insert a gum elastic catheter with its end cut off. Pump into this catheter, by means of a Davidson's syringe, the medicated water, and it will pour out through the glass tube. This washing out has to be done once or twice in twenty-four hours. From the time of the operation up to the present there have been no untoward symptoms; the temperature never rising above 101.2-10° Fahr. To-day the tube was removed, and I consider her now free from all danger.

‘In respect to the use of the drainage-tube, I consider it a most important item in treatment; I have used it in the last fifteen or twenty cases, and am very well satisfied with the results. In this last case, for instance, the twelve or fifteen ounces of fluid which came away after operation might have been absorbed, but on the other hand it would have been very likely to cause septicæmia. Every man is tempted to improve on his present method, and sometimes yielding to this is not judicious. I

thought to improve on the present tube, by making perforations around the side of it. I used it in one case and found the patient, after a few days, complain of a sensation of dragging down of the intestines. I first supposed this to be either neuralgic or hysterical. However, I tried to withdraw the tube, and found it retained in the abdominal cavity; by making sufficiently strong traction I removed it, and found that the omentum had got into the perforations of the tube, and formed minute herniæ; in some cases nearly strangulated. Should such a thing take place into the lower orifice now, the daily washing out would free it and keep it so.

‘In ovariectomy the cause of death is, as a rule, not what we should expect. I mean peritonitis. Out of forty cases, only two died of peritonitis. I do not mean that there were only two deaths; I think there were thirteen or fourteen; but in only two of them was peritonitis the cause. In the rest, septicæmia was the most common trouble.’

[We strongly object to any lecturer drawing any conclusion from a case which is incomplete. An operation is performed ‘last Saturday,’ ‘to-day the tube was removed, and I consider her now free from all danger’—is a most unsafe and doubtful foundation for any teaching.—*Rep.*]

BRANDT ON EFFECTIVE REMEDIES FOR ULCERATIONS OF THE OS UTERI.—Julius Brandt (*Medizinisch-Chirurgische Centralblatt*, March 27, 1874), in cases of chronic induration and erosions of the cervix, believes that the disease is in great measure kept up after the affection of the uterus, which in most cases is the primary cause of this affection, has been relieved, by the purulent and decomposing secretion of the vagina. To prevent this, taking care first of all to remove any decomposing matter off the sore by wiping it with a solution of chloride of lime, he applies a piece of fine charpie dipped in a preparation of one ounce of glycerine, two drachms of tincture of catechu, and one drachm of balsam of Peru, and placed carefully on the raw surface, and encases it with dry charpie, so as to completely surround the vaginal portion of the cervix. This application is used twice a day. The author mentions a case where he cured a lady in five months, who for upwards of six years had consulted innumerable doctors and tried every conceivable remedy. When there are hyperæmia and a granular state of the ulcer, he omits the balsam of Peru. The constitutional treatment should never be neglected when it arises from some internal catarrhal condition. Where it is only a slight erosion, he recommends touching the parts with the solid stick of nitrate of silver, or a solution of the same, in preference to any other application. The use of leeches should never be forgotten, especially in hyperæmic conditions of the cervix, but great care should be taken not to apply them to an eroded spot, as it only increases the mischief. Baths of salt water are of great service, but they must be persevered in regularly for months.

W. C. GRIGG, M.D.

LANDAU ON ENDOMETRITIS OCCURRING DURING PREGNANCY; ABORTION ARRESTED; INERTIA OF THE UTERUS; ADHERENT PLACENTA.—Adolf Landau (*Medizinisch-Chirurgische Centralblatt*, March 6, 1874) relates a case where he was consulted by a fine healthy peasant woman, five months pregnant, mother of two children, for a return, as she thought, of the menstrual flux. She attributed it to a blow on the abdomen, received a short time before.

It was attended with a good deal of pain in the lower part of the stomach, and fever. Presently she noticed a reddish discharge, which gradually increased, becoming very profuse and accompanied latterly with pain. The question arose whether it was one of those rare forms of menstruation occurring during pregnancy in persons of a full habit of body, which are generally very profuse when they do happen; or indirectly a detachment of a portion of the placenta; or directly a local hyperæmia of the uterus, the result of the blow, with a consecutive rupture of the uterine vessels. The latter the author believes to have been the case. Fearing a miscarriage, from the blood becoming coagulated within the uterus, increasing its size and setting up expulsive uterine action, he enjoined rest in the horizontal position, administering internally digitalis and opium, which had the effect of arresting hæmorrhage, and the woman went her full time. The labour progressed naturally until the os was fully dilated, when the pains ceased. Ergot and Indian hemp were given, but without effect. A gum catheter was then introduced between the uterus and its membranes, and rapidly induced strong labour-pains, forcing the child's head into the pelvis, when the pains again ceased. The forceps was applied and the child extracted.

The placenta was adherent to the uterus over its whole surface and with difficulty peeled off. There was considerable *post partum* hæmorrhage. Convalescence was retarded, but the patient eventually quite recovered. The writer considers the inertia of the uterus to have arisen from its muscular walls having become altered by the metritis causing an increase of the fibrous tissue, which not only interfered with their contraction but also with their nerve-supply.

W. C. GRIGG, M.D.

CASA ON SENILE GALACTORRHOEA.—Dr. Luigi Casa relates two cases in the *Gazzetta della Cliniche* for February 17. The first case was that of a woman, G. M., aged sixty-five, in whom the galactorrhœa appeared without any previous indication of disease. Her parents had been healthy, and had lived to a great age, and she had not had any disease of importance. She had had seven healthy confinements, and ceased to menstruate at the age of fifty-five, for three or four years, after which she felt quite well. When she was about sixty years old the breasts began to swell; this continued for some months, and, as she said, was greater, and was attended with increased pain, at the full moon. There was no other drainage. The flow of milk then ceased for about two years, until the beginning of 1868, when Dr. Casa was called to see G. M. On examination, he found the breasts much enlarged, measuring about ten inches from the ribs to the point of the nipple. On gentle pressure a fluid escaped, which presented no difference in appearance from milk. Notwithstanding her age, she felt considerable venereal excitement; she had also pruritus of the genitals, which, however, was not very troublesome. She had lost her appetite, and was always slightly constipated. Dr. Casa could not, on careful examination, find any disease of the external or of the internal genital organs. He gave her Bonjean's ergotin, and in a few months the lacteal discharge and all signs of mammary engorgement disappeared. She died in the same year, of typhoid fever following double pleuro-pneumonia.

The second case was that of a woman, aged about

fifty, in whom the catamenia had ceased for some years, and who died of uterine cancer about two years ago. Her mother had died of the same disease at a very early age. Early in 1871, the woman, while consulting Dr. Casa on account of the uterine disease, showed him her breasts; they were enlarged, and in the course of a few weeks there was a discharge of a fluid presenting the characters of milk, but rather denser, and of a greenish colour.

A. HENRY, M.D.

RECENT PAPERS.

On the Causes of Posterior Obliquity of the Uterus at the time of Parturition. By Dr. E. Porro. (*Gazzetta Medica Italiana-Lombardia*, nos. 9 and 10, 1874.)

The Treatment of Puerperal Metrorrhagia. By Dr. L. Giuntoli. (*L'Imparziale*, no. 26, 1873, and no. 3, 1874.)

On Pelvic Cellulitis. By Dr. A. Goschler. (*Allgemeine Wiener Medizinische Zeitung*, nos. 5, 6, 7, 8, and 10.)

Suppuration of the Uterus and Vagina following Atresia of a Rudimentary Right Vagina in Uterus Bicornis. By Dr. O. Braus. (*Berliner Klinische Wochenschrift*, nos. 10 and 11, 1874.)

MISCELLANY.

FOREIGN BODY IN THE STOMACH.—About five months ago, says the *Philadelphia Medical and Surgical Reporter*, the infant son of Mr. J. B. Scattergood, of this city, aged four and one-half months, swallowed a fruit-knife two and three-eighths inches long, one-fourth inch thick, and one and one-fourth inches in circumference. Over four months afterwards, on March 8, the child then being nearly nine months old, the knife passed out through the bowels. During the interval the little fellow suffered very much at times, but he is now in good health.

FRENCH ACCLIMATISATION SOCIETY.—At the seventeenth annual meeting of this society lately held in Paris, M. Drouyn de Lhuys, the president, gave an interesting account of the naturalisation of coffee. He showed it, as it was in its original state, a poor and stunted plant growing in the desert plateau of Abyssinia, then gradually acquiring, up to the eighteenth century, that importance in Bourbon Martinique and Guadeloupe, which has made it one of the principal sources of colonial wealth. M. Henri Bouley, of the Institute, read an interesting paper on the domestication of animals.

OUR WEIGHTS.—Upon the average, boys at birth weigh a little more, and girls a little less, than six pounds and a half. For the first twelve years the two sexes continue nearly equal in weight, but beyond that time males acquire a decided preponderance. Thus, young men of twenty average about 143 lbs. each, while the young women of twenty average 120 lbs. Men reach their heaviest bulk at about thirty-five, when they average about 152 lbs.; but women slowly increase in weight until fifty, when their average is about 128 lbs. Taking men and women together, their weight at full growth averages about twenty times as heavy as they were on the first day of their existence. Men range from 108 to 220 lbs., and women from 88 to 207 lbs. The actual weight of human nature, taking the averages of ages and conditions—nobles, clergy, tinkers, tailors, maidens, boys, girls, and babies, all included—is very nearly 100 lbs. These figures are given in airdupois weight; but the advocates of the superiority of women might make a nice point by introducing the rule that women be weighed by troy weight—like other jewels—and men by airdupois. The figures will then stand: young men of twenty, 143 lbs. each; young women of twenty, about 146 lbs. each, and so on.

PRESERVATION FROM HYDROPHOBIA.—At the meeting of the French Academy of Sciences on April 13, M. Bouley laid before it a memoir by M. Bourrel, a veterinary surgeon of Paris, entitled a 'Complete Treatise on Rabies in the Dog and Cat, with a method of Preserving Oneself against it.' The means of preserving from rabies, to make known and disseminate the knowledge of which is the principal aim of this memoir, consists in taking off the edge of the teeth of the dog by the aid of nippers and files. M. Bourrel had the daring to perform this operation of filing down the teeth on three dogs when they were in a condition of raging madness, notwithstanding the danger of inoculation he incurred both during the preliminaries and the different stages of the process. Six dogs kept for experiment were then delivered over to the mad animals, who precipitated themselves on them and bit them furiously, but without breaking the skin in any one of them. The dogs experimented on were watched during six months, and madness did not show itself in any of the number. M. Bourrel, convinced that the blunted tooth of the dog could not penetrate through clothing, gave his hand covered with a glove to one of the mad dogs. 'When,' he says, 'the dog released it, the glove was intact, and the bite had only produced a deep impression. This experiment, repeated on dogs who were not mad, to which I gave my naked hand to bite, proved to me that the blunted tooth can but very rarely, however great may be the contraction of the muscles of the jaw, break the epidermis of animals, whose hair necessarily deadens the pressure exerted; and can only injure the human epidermis in very exceptional cases.

THE United States' Medical Directory is now passing through the press, and will be delivered to subscribers early in June. It will make a handsome volume; large octavo size, of six hundred or seven hundred pages, and is offered to subscribers at five dollars. After publication the price will be six dollars.

NOTICE.

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Advertisements should be sent to the Office, 15 Waterloo Place, S. W., before Twelve o'clock on Tuesday morning.

RECORD OF APPOINTMENTS.

HOSPITALS, ETC.

| NAME. | TITLE. | OFFICE. | INSTITUTION. |
|-----------------------------|------------------|---|-------------------------------------|
| Chambers, R. | L.K.Q.C.P. Irel. | Assistant Medical Officer . | Inverness District Lunatic Asylum. |
| Kinsey, Robert H. | M.R.C.S. Eng. | Surgeon | Bedford General Infirmary. |
| Lawder, E. J. | L.R.C.S. Irel. | Assistant Surgeon and Resident Registrar. | County Down Infirmary, Downpatrick. |
| Sharpen, Henry W. | F.R.C.S. Eng. | Consulting Surgeon | Bedford General Infirmary. |
| Steele, Henry F. A. | M.R.C.S. Eng. | Resident Medical Officer . | Bloomsbury Dispensary. |
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POOR LAW AND SANITARY SERVICE.

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| Evans, Arthur G. | M.R.C.S. Eng. | Med. Off. and P.V. | Blakesly District, Towcester Union | 60 0 0 and fees. | 11,231 | 2,266 |
| Fendick, Robert G. | M.R.C.S. Eng. | Medical Officer . | 3rd District, Clifton Union | 25 0 0 | 2,109 | 26,037 |
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| MacGill, George | L.R.C.P. Ed. | Medical Officer . | { Workhouse Blatchinworth and Calderbrook } Rochdale Union | — — — 40 0 0 | — 6,464 | — 6,691 |
| Pattinson, Henry B. | M.R.C.S. Eng. | Medical Officer . | Peters-Marland District, Torrington Union . | 4 3 0 | 2,200 | 316 |
| Polson, John | M.D. | Med. Off. and P.V. | Parish of Kirkden, Forfarshire | — — — | — | 1,623 |
| Randolph, Charles | L.R.C.P. Ed. | Med. Off. of Health | Wellington Rural Sanitary District | 90 0 0 | — | — |
| Sheard, William F. | L.R.C.P. Ed. | Med. Off. and P.V. | Wiveliscombe Urban Sanitary District . . . | 10 0 0 | — | 2,059 |
| | | | District of Putney, Wandsworth and Clapham Union | 80 0 0 and fees. | 2,228 | 9,500 |

MISCELLANEOUS.

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|---------------------------|------------------|-----------------------------------|--|
| Griffith, Robert P. . . . | L.K.Q.C.P. Irel. | Assistant Civil Surgeon | Island of Mauritius. |
| Potter, John | M.D. | Medical Officer | Royal Irish Constabulary, Kilkenny. |
| Sheard, William F. . . . | L.R.C.P. Ed. | Surgeon | Foresters, Oddfellows, and Independent Friendly Societies, Putney. |

RECORD OF VACANCIES.

HOSPITALS, ETC.

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|---|-------------------------------------|--|
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| Warneford Hospital, Leamington | House Surgeon | 80 0 0 board, lodging, &c. |
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| Alnwick Infirmary | House Surgeon | 100 0 0 board, residence, &c. |
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| Royal Pimlico Dispensary | Attending Medical Officer | 80 0 0 to commence, unfurnished rooms, &c. |
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| Royal London Ophthalmic Hospital | Curator | — |
| Glasgow Royal Lunatic Asylum | Resident Physician Superintendent | 600 0 0 house, coal, &c. |
| Western Infirmary of Glasgow | Superintendent | 250 0 0 board and lodging. |
| Kilburn Dispensary | Assistant Resident Medical Officer | 80 0 0 apartments, &c. |
| London Hospital | Surgeon Dentist | — |
| Bury General Dispensary | House Surgeon | 100 0 0 furnished apartments, &c. |

POOR LAW AND SANITARY SERVICE.

| UNION, DISTRICT, ETC. | OFFICE. | SALARY PER ANNUM, TERMS, ETC. | AREA. | POPULATION. |
|--|---|--|--------|-------------|
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| Thingoe Union { No. 4 District } | Medical Officer | 50 0 0 | 8,080 | 1,552 |
| { No. 5 „ } | Medical Officer | 42 6 0 | 6,660 | 1,607 |
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| Coventry Urban Sanitary District | Med. Off. of Health | 100 0 0 | — | 37,670 |
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MISCELLANEOUS.

| INSTITUTION OR PLACE. | OFFICE. | SALARY PER ANNUM, ETC. |
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| | Three Examiners in General Education | — |
| | Dispenser | — |

The London Medical Record.

WEDNESDAY, MAY 6, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

THE USE OF LARGE ENEMATA.

* Prenez-le, Monsieur, prenez-le ; il ne vous fera point de mal, il ne vous fera point de mal ; il est bénin, bénin ; là, prenez, prenez, Monsieur, c'est pour déterger, pour déterger, déterger.

MOLIÈRE, *M. de Pourceaugnac*, acte i. sc. xv.

The use of clysters and purgatives in medicine has outlived the sarcasms of Molière and Rabelais, the attacks of homœopathists, and other opponents of orthodox medicine, and the more serious arguments of Skoda, Skey, and other advocates of constipation. The reasons are not far to seek ; for, whatever the theoretical advantages of loaded large intestines at all times, and the practical uses of retaining the alvine contents in certain diseases, or after such operations as herniotomy, the repair of vesico-vaginal fistula, ovariectomy, and the like, there can be little doubt that the majority of mankind cannot, with impunity, long retain accumulations of fæcal matter, reeking with poisonous gases ; and further, that such accumulations often produce serious inconveniences in a mechanical way, preventing free movements of the diaphragm and abdominal muscles, thus hindering respiration, as well as locomotion ; preventing absorption and free circulation of blood—thus inducing marasmus on the one hand, and a tendency to inflammatory stasis and dropsy on the other. Of all the ways of relieving over-loaded bowels, and of softening hardened scybala, none are at once so gentle, and so efficacious as enemata—especially large ones. We have already given our readers a summary of the views of Gustav Simon, Alfred Hegar, F. Mosler and Wilbrand, on this subject, in vol. i. no. 47, p. 747, and vol. ii. no. 56, p. 50. We shall therefore content ourselves, now that the matter has been freely discussed in the German medical papers, with giving a summary of the general results of the discussion, and the practical outcome of the experimental trials of this method. Those who wish for more detail will find the whole subject carefully and fully discussed in the *Allgemeine Wiener Medizinische Zeitung* for March 3, 10, 17, 24, and 31, in articles based chiefly on matter contained in G. Simon's article in *Langenbeck's Archiv für Klinische Chirurgie*, vol. xv. part i. ; Alfred Hegar's work, *Ueber Einführung von Flüssigkeiten in Harnblase und Mastdarm* (Freiburg : F. Wagner) ; Wilbrand in the *Berliner Klinische Wochenschrift*, no. 49 (1873) ; F. Mosler, in the same journal, no. 45 (1873) ; reports in the journals of the discussions at Wiesbaden on September 20, and subsequent experiments in the Heidelberg Hospital—the essence of which has already been laid before our readers. We have hinted before, and we take this opportunity of

reminding our German friends, that there is but little new in this discussion. The advantages of large enemata, the use of an apparatus like an irrigator, have all been familiar to English surgeons and physicians for many years. Even the instruments, or, at all events, some on precisely the same principle, were exhibited at the Obstetrical Society's conversazione in 1867—and cases like Wilbrand's have occurred again and again in both hospital and private practice—as long ago as Dr. Bright's time, it at no earlier date.

Mosler's experiment on Simon's patient with a fæcal fistula (see LONDON MEDICAL RECORD, vol. i. p. 747), is, however, a valuable confirmation of the views which have long been held by practical men. And the whole discussion is valuable, as tending to simplify and strengthen our faith in simple methods of treatment. It seems to us, that the following are the practical results.

1. Enemata, if sufficiently copious, will reach the small intestine, the ileo-cæcal valve notwithstanding, provided there be sufficient propelling force, whether that be gained by a long column of fluid in the apparatus (as in the use of irrigators), or by the patient's position, with the pelvis elevated, favouring the descent of the fluid, or by repeated action of the injecting instrument. For ourselves, we could never see that the valvula Bauhini could ever be regarded as a real obstacle to injections from below, provided these were sufficiently copious ; and we had made some experiments at different times, which had given ocular evidence of the extent to which injections had penetrated.

2. Hegar's and Mosler's experiments, and Wilbrand's case, show that it is neither necessary to use complex apparatus, nor to put the patients into awkward and perhaps dangerous positions ; since from three to five feet of pipe, with a funnel at one end and a suitable nozzle at the other, is all the apparatus we need ; and the patients simply lie upon the back, and the only pressure required is that of the column of fluid. We may here remark, parenthetically, that we fail to see the pertinency of the long discussion about atmospheric pressure, sub-atmospheric pressure, and the like ; because, whether in or out of the body, making allowances for temperature and the varied characters of the gases, we take it that atmospheric pressure may be regarded as a fairly constant unit ; were it otherwise, learned professors and their poor patients would alike be crushed by the superincumbent air. The real pressure we have to overcome is that of the patient's muscles—aided in some cases by tense gases in the bowel ; for, if anyone will insert a tube into the rectum before the injection has come away, he will see the fluid come out in jets or sprits when the patients strain, and less markedly so at every descent of the diaphragm. In certain positions of the body, there is also the difficulty of 'making the water run up-hill,' when we are administering an enema in the ordinary manner—ingeniously overcome by Hegar and Mosler, either by making the water run down-hill (or rather down a long tube) first, or by shifting the position of the patient.

3. The safety and efficiency, or, to quote Molière against himself, the benign action of large enemata of water, gruel, and the like, is strikingly shown by these experiments. We are strongly inclined, however, to believe that a very small quantity of soap, or of some neutral salt, is even less irritating to the mucous membrane than pure water alone. Ex-

cept in rain-water, or in water which has been frozen, man no where finds anything like a pure drink provided for him; and what is true in a superior sense, and, so to speak, *à priori*, is, we think, no less true *à posteriori*.

4. As regards *priori* in these questions, we have already partially disposed of that. But Simon seems to have been singularly fortunate in having patients with fistulæ high up in the bowel. Hegar and Wilbrand appear to have worked separately, and ingeniously, at the same subject; and Mosler appears to us to take the widest and most advanced views, and, so to speak, 'to grasp' the subject better than the others. To Mosler also belongs the credit of the crowning experiment recorded in our previous number, quoted above. It seems, however, not superfluous to remark that the advantages of *position* claimed by Hegar and Wilbrand are not confined to the mere introduction of the fluid. There are cases in which it is not only desirable to gain admittance for the clyster, but also to keep the warm fluid in close contact with the hardened fecal masses. This would be more particularly necessary, if, as Simon suggests, large nutrient enemata be given to sustain life, in exhausting diseases, such as cancer of the stomach.

5. The caution impressed upon us by these experimenters, not to allow air to get into the bowel, or as little as possible, is not an idle one. A very small quantity of air is not only intensely irritating to the bowel, but gives the greatest pain, almost agony in many cases. This fact was well known to our forefathers, although some of the so-called 'trained nurses' of the present day, and many practitioners even, seem ignorant of it. Unless the precaution be taken to exclude air, the clyster is certainly not benign. To sum up all, large injections do reach the whole length of the large intestine, and beyond it; they are safe and speedy remedies for fecal accumulations, for some forms of intestinal obstruction (notably intussusception) and internal herniæ; for the treatment of intestinal ulcers, of hæmorrhage from the bowels and diarrhœa; for worms, especially oxyurides, and their congeners; as a means of stimulating and increasing the secretion of bile; and of introducing into the small intestine nutritious matters in a state easily susceptible of absorption.

Lastly, the Vienna reviewer adds with justice, that the use of the irrigator apparatus (or of the long tube and glass-funnel) is a likely method of overcoming meteorism which might otherwise defy remedial measures—since it is easy for the bubbles of gas to escape through the fluid, as they did in Wilbrand's case.

W. BATHURST WOODMAN, M.D.

COLIN ON THE ASHANTEE EXPEDITION.*

M. Léon Colin, Professor at the Val-de-Grâce Hospital in Paris, in a paper published in the *Gazette Hebdomadaire de Médecine et Chirurgie*, and since printed separately, gives a brief sketch of the West Coast of Africa in its medical and hygienic aspects, derived both from English records and from the results of the French occupation of Senegal, &c. The principal dangers to health are touched upon, and the chief diseases that are likely

to be met with enumerated, with a glance at the various means of prophylaxis. An account is also given of the means undertaken for the recent expedition, and a reference to some of the former wars of the kind, particularly the disastrous one of Sir Charles Macarthy, with a survey of the probable chances of failure or success. The author gives due credit to the preparations made for the recent campaign, saying, 'It is only necessary to recall the admirable results of the campaign of the English in Abyssinia and the worth of the epidemiologists, of which that nation has a right to be proud, in order to be certain beforehand that we shall have in this struggle the consoling spectacle of the most energetic efforts placed at the disposal of the most advanced science in order to combat its chief perils.' He lauds also the practical good sense of the English people, who appreciated the importance of the commander of the expedition carefully organising the details of the campaign prior to the arrival of the European troops.

Premising that it affords the keenest interest to the medical men of all countries to follow the course of this campaign as one less against a human enemy than against 'l'imminence morbide,' inseparable from such a terrible climate, M. Colin reviews briefly the chief types of disease likely to be encountered. Among them, the yellow fever has now comparatively little interest for us, seeing that the history of the campaign has been happily free from that terrible scourge. But the remarks on paroxysmal fevers (*fièvres palustres*) have a strong bearing upon the health of our little army. Under this head he includes all attacks of a febrile character, from heat-apoplexy, where the thermic influence predominates, to fatal bilious remittent, where the telluric influence is at its maximum; although he very properly draws a distinction between this class and sunstroke proper (*sideration solaire*) which ought not to be considered in the same category. Quoting Thévenot, he remarks, 'In Senegal, remittent fever is generally the disease of those whose blood is rich and strength still intact;' and this is borne out by present experience, as the short campaign seems to have told most severely upon those who appeared to be physically the strongest; whilst the less robust, when they have escaped dysentery, appear in many cases to have borne the climatic influence fairly well. The prognostication that there would be few cases of dysentery, on account of the precautions taken and the excellency of the diet, have been fully borne out. As regards Guinea-worm, little or nothing has been heard of it among our troops.

In considering the question of prophylaxis, M. Colin throws doubt on the efficacy of quinine as a preventative, but admits that in a country like the west coast, where the malaria is so intense, it is of value, although he appears to look upon it more as a curative agent of malaria immediately absorbed than as actually guarding against future attacks. He justly lauds the precautions taken to keep the troops on ship-board until actually wanted, and not landing them until they could set to active work at once. There can be little question that enforced inaction is one main cause of predisposition to disease in a tropical climate, besides the temptation it gives to intemperance and debauchery, thereby increasing the receptivity of morbid influences. At the same time, he points out from the results of former campaigns that the dangers that the Ashantees have to encounter are at least equal to our own, and he recalls

* *L'Expédition Anglaise de la Côte d'Or, Étude d'Hygiène militaire et de Géographie médicale.* Par M. Léon Colin, Professeur au Val-de-Grâce. (Paris, 1874.)

the result of Sir C. Macarthy's disastrous campaign, when they were obliged to retreat from Cape Coast Castle, more than decimated by dysentery and small-pox. Such, he thinks (quoting Admiral Henriot de Langle) might be the result of the present war. Happily, however, we have been able to teach them another lesson, and one they are not likely to forget, even although the treaty may not be effectually carried out. At the same time it must be admitted that, successful as our operations have been, the dangers of the advance on Coomassie were by no means imaginary, and that a rare good fortune converted into a signal success a series of operations which might at any time have become a fatal disaster. An account, written in the highest terms of admiration, is given of the arrangements of the *Victor Emmanuel*, and its immense importance is fully recognised. The working of this vessel has been one of the most valuable features of the whole campaign, as well as a powerful element of its success. That the officers on board should have been so far ignored as not to be mentioned at all in dispatches, or even officially recognised as part of the expedition, is surprising, but it is satisfactory to know that the work done was thoroughly known and appreciated by the present head of the Army Medical Department, and the conferring of the Order of the Bath upon Surgeon-Major Bleckley is a just recognition of the value of the service done, and the excellent way in which it was carried out. A well-deserved tribute of praise is given by Dr. Colin to the services of Dr. (now Sir Anthony) Home in organising the medical and hygienic arrangements of the expedition, to which services the final triumph was in a large measure due, although he himself was unfortunately deprived of the opportunity of personally witnessing it.

In conclusion we may say that the happy results of so arduous and dangerous a campaign, coming after the signal successes of Abyssinia and North China, may well make us proud of the medical departments of the public services, and convince us that, in spite of the many disadvantages and prejudiced opposition they have to encounter, they have shown themselves second to none, and have worthily maintained their high reputation for professional skill, administrative capacity, and self-sacrificing devotion.

J. MACPHERSON, M.D.

ESMARCH ON BLOODLESS OPERATIONS.

The following is a brief abstract made by Professor Esmarch of his experience during the past year of his practice in Kiel, of bloodless operations. The communication was made at the third sitting of the German Surgical Association, held in Berlin, April 8th to 11th, 1874. After a few preliminary remarks, Professor Esmarch detailed the following statistics.

From February 1, 1873, to April 1, 1874, above two hundred bloodless operations were performed in the Clinic at Kiel. Amongst them were the following:—

Amputations.

Thigh, ten cases; one died, with erysipelas and septicæmia.

Leg, eleven cases; one died, with ditto.

Humerus, three cases; none died.

Total: twenty-four cases, with two deaths.

Disarticulations.

Shoulder-joint, one case; cured.

Hip-joint, one case; died of exhaustion.

Total: two cases, with one death.

Resections.

Hip-joint, three cases; one died, of septicæmia.

Knee-joint, three cases; none died (one with subsequent amputation).

Elbow-joint, two cases; none died (one with subsequent amputation).

Total: eight cases, with one death.

Amongst the advantages of the bloodless method of operation, the following may be mentioned.

1. There is no loss of blood. (Anæmia produces a disposition to surgical accidents, by the tendency to coagulation producing thrombosis, and leading often to pyæmia. Valsalva's method of treating aneurism acts by inducing greater coagulability of blood.)

2. It is a great advantage that sponges may be thus almost wholly avoided; for, with whatever care they are disinfected, one can never be absolutely certain that they are not sometimes the means of infecting wounds.

3. The larger arteries and veins are less injured in the bloodless method, than with ordinary digital or instrumental compression, the constriction being uniform, circular, by means of the soft parts, and distributed over a large surface.

Esmarch knows of no dangers, nor of any bad results. Paralysis he has never seen to take place. It may be produced, however, by too forcible constriction of the limb. Esmarch applies the apparatus himself, and does not trust his assistants, who are rather inclined to overdo their business. It is quite remarkable how comparatively small is the force necessary to arrest all flow of blood through the arteries. The first turns must not be made too tightly: every superimposed turn increases the compression very considerably.

Gangrene has not been observed in any instance by Esmarch. Some probable advantages of bloodless operations may be shortly hinted at.

1. Local anæsthesia may take place after a few minutes. Richet has indeed already recommended forcible constriction of the digit for the operation on ingrown nail. Richardson's ether-spray, or ice and salt, produces anæsthesia much more quickly in parts made bloodless, as the warmth of the blood is excluded. The temperature of the bloodless limb sinks immediately.

2. Diseased parts, bones, joints, can be very easily examined before performing an operation. Esmarch narrated very graphically how on a recent occasion he demonstrated a diseased joint before his class, pointing out the conditions which made an amputation necessary.

3. Foreign bodies, splinters, needles, &c., are easily found.

4. Wounded arteries are easily exposed and secured. Antyllus's method is facilitated.

5. Operating without skilled assistants, or indeed without assistance at all, becomes possible in a way never before practicable. Esmarch has received many letters of thanks from surgeons in various parts of the country.

6. It is suggested that death may be often averted, and cases of hæmorrhage and transfusion avoided in anæmic persons, by bandaging the extremities, in order to temporarily drive the blood of one or two extremities into the body.

An elastic tube is the most proper thing for general use, because it can be employed in all places. An elastic roller can be employed in many cases just as well, but its use must be learned. Bloodless operations can be performed at the shoulder or hip-joint. The tube is applied as in the form of a single turn of spica bandage, the two ends crossing each other in the groin in the case of the hip-joint, or over the acromion in the shoulder. They are held on the stretch by an assistant, and this way the axillary and the common femoral may be completely controlled. For compression of the aorta and external iliac, a pad, or roller, must be used with the elastic tube.

WILLIAM MAC CORMAC.

FORENSIC OPHTHALMOLOGY.

ON INJURIES OF THE EYE IN THEIR MEDICO-LEGAL RELATIONS. BY PROFESSOR ARLT, OF VIENNA.*

(Continued from page 260.)

11. *Stretching and Laceration of the Zonule of Zinn.*—In order to form a sufficient diagnostic and prognostic appreciation of the changes which affect the zonule, and subsequently the lens, in consequence of concussion, we must first make some recapitulatory remarks on the importance of this structure.

It is the zonule which secures the lens in its groove. The position of the posterior capsule on the vitreous body is interfered with, as soon as the zonule has ceased, entirely or in a great part of its circumference, to connect the lens firmly with the ciliary processes. By virtue of its breadth between its insertion into the anterior capsule and the apex of the ciliary processes, it allows, without injury to the connection with the vitreous body, the crystalline lens to move forwards and backwards, and even sideways, although such changes of place do not occur in the physiological state. The lens can move two or three millimètres forward (when the aqueous humour is drawn off), and probably as far backwards (when the vitreous body escapes through the sclerotic), without laceration of the zonule, provided that the motion be not sudden.

The zonule may be stretched without laceration to two millimètres, and perhaps even more, if the extension be made gradually. We see this in high degrees of myopia, and in the so-called buphthalmus, as well as in staphylomatous distension of the globe in the neighbourhood of the ciliary body; we find it in eyes in which the lens is concentrically contracted or drawn forward towards a corneal cicatrix; and a partial stretching can also be observed in congenital ectopia of the lens.

If such stretching be continued, a more or less extensive (even total) laceration of the zonule may follow, without any cause or with a trivial one, and still more after violent concussion of the eye or of the head. While thus in one case a displacement of the crystalline lens is to be ascribed simply to a violent blow, etc., it may in another be the result of a special condition of the body of the injured person, viz., of his eye. Before, then, forming a judgment as to the force with which the injury was inflicted, the condition of the eye before the injury must be ascertained

as well as possible. Congenital ectopia of the lens, which predisposes to total separation of the lens from its natural connection, reveals itself not only by shortness and weakness of sight, but is almost always found to be bilateral. A high degree of myopia, also generally bilateral, but sometimes also unilateral, is indeed met with also after injury, at least when this has not produced perforation of the globe.

12. *Diagnosis of Subluxation of the Crystalline Lens.*—The zonule of Zinn resists the tendency of the lens to assume a spherical form, and keeps it flattened to a certain degree. When this force is removed by extensive or total laceration of the zonule, the transparent lens is reduced in the equatorial and increased in the axial diameter. The eye is rendered myopic by this change of form in the lens, and the movement of the lens from the retina towards the cornea can only increase this ametropia.

With complete peripheric destruction of the zonule, an essential factor of accommodation is at the same time removed; thus the object of direct vision must be brought before the eye at a fixed distance, in order that the rays from it may unite on the retina.

As soon as the lens ceases to be drawn on by the ciliary processes, it is thrown by the movements of the eye into oscillations which are communicated to the iris, and appear as quiverings or shakings of this structure after the lens has come to a stand. This symptom, however, has in itself no positive value, as, when the lens is transparent, it cannot be determined with certainty whether the vibrations of the iris are connected with mobility of the lens. The iris may be thrown into vibrations independently, when it is free at the pupillary border, and more aqueous humour is collected behind it than in the normal state. In cases of myopia with a deep chamber such vibrations may not unfrequently be observed to take place in a large circle of the iris; and in adhesion of the vitreous body with the deep layer of the lens, extensive vibrations of the iris are very often seen.

13. *Distortion of the Lens.*—After partial, and under some circumstances also after total laceration of the zonule, the crystalline lens may for some time remain lying in front of the vitreous body, but so that its axis does not correspond, or but slightly, with the axis of the eye. In some rare cases the lens is thrown into an oblique direction, so that one part of its edge reaches further forward; and then it is also drawn more or less laterally, so that the more posterior part of its edge lies nearer the ciliary processes than the anterior. From this there results, along with the changes described in section 12, not only a more or less marked impairment of the acuteness of vision through irregular refraction (astigmatism), but also a valuable diagnostic sign—unequal depth of the chambers. The portion of the edge of the lens that is pressed forward pushes the corresponding part of the iris forward.

When the pupil is strongly dilated (pathologically or artificially) the distortion of the lens may sometimes be recognised by ophthalmoscopic examination. The border of the lens appears as a dark meniscus, the light refracted from the fundus oculi being prevented from reaching the observer by total reflection at the edge of the lens; while, through the lens (if it be still transparent) as well as through the openings between the edge of the lens and the ciliary processes, the fundus oculi is clearly seen, provided

* *Wiener Medizinische Wochenschrift*, April 18, 1874.

that there be no sanguineous effusion or its results in the vitreous body, nor any raising of the retina.

14. *Lateral Displacement of the Crystalline Lens.* In consequence of the total reflexion of the light which is thrown on the eye of the observer from the edge of a transparent lens still in its capsule, a portion of the edge appears as a shining meniscus, reminding one of a drop of oil floating on water. This phenomenon may be observed in certain positions, as soon as the lens is so far dislocated that the view of it is not obstructed by the iris; and it may be also seen with the naked eye when the lens lies in the anterior chamber, or when a part of its edge, lying behind the iris, extends into the pupillary region; or with the ophthalmoscope, when the lens is deeply pressed on or sunken in the vitreous body. In the latter case, the patient may complain of seeing a dark ring, or a dark disc somewhat lighter in the centre; this occurs when the relations of the position of the lens and of the entrance of light are such, that, in consequence of the total reflection of the light from the edge of the lens, the portion of retina lying behind it is obscured.

If the lens, while yet in its capsule and transparent, be dislocated so as to occupy only a portion of the pupillary region behind the iris, double vision in the one eye may be the result. If such a lens be sunken so far behind the iris that its upper edge reaches about half way through the pupil, the upper portion of the light from a distant point will pass through the cornea, the aqueous humour, and the vitreous body, to the retina in the region of the macula lutea, forming a dispersion circle (an indistinct image), since the rays in question can only converge to a point behind the retina; the lower portion, on the other hand, passes through the upper section of the lens, and hence the rays not only converge in front of the retina (as in the myopic eye), but are refracted downwards, as this section acts as a prism (with the base directed downwards); the rays that have passed through the lens, having converged in front of the retina, also form an indistinct image below the macula lutea, and it will seem to the patient that, above the object directly seen, he sees a second. By a suitable approximation of the object, a position may be found, in which the rays passing through the lens do not converge before but on the retina, and on the other hand, the refraction of the upper rays may be corrected by the use of a convex glass. It is self-evident that, in examining such a case, account must be taken of the condition of refraction in the eye.

Prognosis and Treatment.—Subluxation of the lens is followed by permanent disturbance of vision, which, even in the most favourable case, renders impossible sufficient sight for reading, writing, sewing, &c. Experience shows that sooner or later (perhaps after many years), it leads to opacity of the lens, either of itself or through the changes produced at the same time in the choroid or vitreous body, or it passes, either spontaneously or under the influence of slight causes, into complete luxation.

It is not probable that lacerations of the zonule, which allow partial displacement of the lens, can be healed in such a way as that the lens regains its normal position and firmness. Nor is it probable that the results can be in any way averted by dietetic treatment. It would exceed the limits of these remarks to describe the circumstances in which the condition of the patient may be rendered more

bearable or less perilous by iridectomy, iridesis, or replacement of the lens. The eye remains permanently maimed.

(To be continued.)

MEDICINE.

LAWRENCE ON A CASE OF INTRACRANIAL TUMOUR.—Dr. S. Lawrence, of Montrose, read the history of this case before the Medico-Chirurgical Society of Edinburgh, on February 4 last, and has since reprinted it in a pamphlet form. He thinks that for clinical purposes, we may class all intracranial diseases, especially tumours and adventitious formations, in four groups, viz. :—1. Those presenting such marked special and general symptoms as to indicate, not only their existence, but also their seat. 2. Another group, in which the local and constitutional ailments point strongly to the existence of such tumours, but throws little or no light on their special location. 3. A group, in which the symptoms are altogether misleading, withdrawing the attention of the physician from the brain and fixing it on some distant organ, say the stomach or the liver. 4. In a certain number of cases the adventitious formation is altogether latent, having lain for months, or perhaps years, embedded in the brain, without giving any outward sign, direct or indirect, of its existence, and is at length only brought to light by *post mortem* examination after the subject of it has died of some other disease. Dr. Lawrence's patient was a house-painter, aged twenty-one. Much of his time was spent in book-keeping. Without any premonitory symptoms, or any apparent cause, he was seized in the night of December 15-16, 1868, with violent headache and vomiting, followed by incoherence, and then more or less stupor. Pulse, 54-60, labouring, but steady. On the 19th he had less pain, less stupor, but strabismus; his pupils were more contracted than natural, but sensitive to light. During the next ten days the serious symptoms subsided. On the 30th he had 'improved in every way, excepting squint, which continued.' About the middle of January his convalescence was interrupted for a day or two by an attack of vomiting. The strabismus persisted several weeks, and was the last symptom to disappear. In due time he resumed business, and during the latter part of 1869, and throughout 1870, continued his occupation, and remained in perfect health. In the first week of January, 1871, he was carefully examined for a life-insurance society, but the utmost scrutiny failed to detect any trace whatever of the dangerous illness through which he had passed upwards of two years before, or any flaw in his general condition. On March 14, 1871, he was visited, and had suffered for fourteen days from pains in the head and slight giddiness. At the end of the month there was a slight exacerbation and febrile symptoms. Leeching, free purging, and perfect quietude brought much relief. But on April 7, giddiness and pain returned. Early in May he had much improved; but on May 28 'giddiness and *dimness of sight* are troublesome . . . the bowels are inclined to constipation.' On June 12 the dim vision was confined to the left eye. On September 30, he could with difficulty discern any object with the left eye; the sight of the right eye was also becoming impaired. His gait also had become a little unsteady. On Octo-

ber 10, he was quite blind in the left eye, and the sight of the other eye was very dim; pain at the back of the head. On the 16th he had slight syncope. On November 1, the entry is 'there is now almost total blindness.' In December he was more closely confined to bed, finding dorsal decubitus the position that gave him the greatest immunity from pain. He became extremely sensitive to noises, which were always followed by more or less pain. January, 1872, passed without any change. On February 17 he had an attack of vomiting; also the next night. On the 22nd, after an exacerbation of pain in the head, he was seized with an epileptiform fit. On the 23rd, vomiting recurred. On March 11 and 26, there was recurrence of epileptiform seizure, on both occasions whilst sitting, and after slight exertions. During April, the weakness of the lower extremities increased. From this time to the end of October, there was no marked change. He was cheerful; but was confined to bed, as he could scarcely sit up. He was quite blind; his pupils were widely dilated, and insensible to light. During December, any attempts to raise the head from the pillow were followed by unconsciousness, as well as pain. During January, February, and March, 1873, his intellect remained clear; he had almost complete motor paralysis, but no anæsthesia. On April 12, between four and five p.m., he was suddenly seized with severe pain in the head, and vomiting. His mother applied cold to the head, and heat to the lower extremities, and he seemed to feel relief; but on being left for a few moments, he was found dead when his friends returned to the room. At the *post mortem* examination the brain was bulged out, and fluctuated; the convolutions were flattened, the spaces of the sulci obliterated. The lateral ventricles contained more than 12 ounces of clear serous fluid. On removing the brain, a loose gelatinous tumour was found to occupy the base. From its semi-fluid consistence, it was impossible to define exactly the boundaries of this body, but it occupied the fourth ventricle, and extended in front of the pons Varolii, spreading as far forward as the optic commissure, under the arachnoid. In the substance of the gelatinous mass in the fourth ventricle there was a small recent clot, about the size of a pea. The substance of the tumour, examined under the microscope, exhibited small round nucleated cells, about the size of white blood-corpuscles.

[The Reporter regrets that space does not admit of his incorporating the pertinent and interesting remarks of Dr. Lawrence on this case. There are two or three omissions in the report, which, it is possible, may yet be supplied by Dr. Lawrence. For example, there is no reference to the family history of the patient, nor to the history of his infancy and childhood. Secondly, the results of ophthalmoscopic examination are not mentioned; and in the numerous and instructive references to authorities, the more modern researches of Bouchut, Hughlings Jackson, Clifford Allbutt, and others are ignored. Thirdly, we are not informed whether the intercurrent attacks of headache, vomiting, &c., were accompanied or preceded by elevations or alterations of temperature. Lastly, we can only infer, since no clear statement is recorded, the absence of tubercular or other disease of the lungs or other organs.—*Rep.*]

W. BATHURST WOODMAN, M.D.

WENZEL ON ICED WATER INJECTIONS IN DYSENTERY.—Dr. Bodo Wenzel had opportunities of

treating numerous cases of dysentery, whilst surgeon to a ship sailing to and from Havanna, New Orleans, and New York, and also whilst he was on shore at these places. He records the result in a brief communication in the *Berliner Klinische Wochenschrift*, for December 1, 1873 (no. 48). He says that, of all the remedies against this disease of which he had experience, the most reliable was one of the most simple, inexpensive, and free from danger. It consisted in the use of clysters of iced water, containing finely pounded ice. He believes this mode of treatment to be novel, or, at least, to be seldom applied. He was induced to try it, by having on a voyage from New York, a very severe case of dysentery under his charge. The patient had high fever, great pain in the belly; and, besides very frequent action of the bowels, there was extremely severe hæmorrhage, which at one time threatened to be fatal. To check this he employed these iced enemata, every two hours. The effects were so beneficial, in reducing the fever, relieving the tenesmus, checking the diarrhœa, and relieving the pain, as well as stopping the hæmorrhage, that all other medication was left off—and one of the severest cases of dysentery ever seen was practically cured in fourteen days. Similar favourable results were attained in other cases. Dr. Wenzel, however, has not found the same brilliant success in chronic and relapsing cases; and he therefore concludes that, in all recent acute cases, an energetic local antiphlogistic treatment is a very efficacious, if not the most efficacious, remedy against dysentery.

W. BATHURST WOODMAN, M.D.

FOLLET ON A SIGN OF THE COMMENCEMENT OF DIABETES.—Dr. Follet (*Revue des Sciences Médicales*, April 15) states that a lady, aged twenty-six, showed all the outward signs of the most robust health, but complained of feelings of weight after meals, accompanied by giddiness and hot flushes. But some of her finger and toe-nails had fallen off, leaving the subungual dermis covered with a fine pink epidermis, showing no change whatever. There was no trace of inflammation in the matrix around the circumference of the nails. The father of the patient, who was not syphilitic, had seen his nails fall off in the same way, without pain or suppuration; and eighteen months after the appearance of this accident, he died of diabetes. This information induced M. Follet to examine the urine of the patient, in which he found six grains of sugar to the litre.

In this case there was doubtless a circulatory disturbance analogous to that which, in more advanced cases of diabetes, brings on localised gangrene of the hands and feet.

NOTHNAGEL ON RENAL TUBE-CASTS IN CASES OF JAUNDICE.—Professor Nothnagel (*Deutsches Archiv für Klinische Medizin*, October, 1873), found tube-casts in the urine of a young man who was suffering from simple icterus catarrhalis; with the passing away of the jaundice, the tube-casts disappeared. Since that time he has investigated a large number of cases of jaundice, and he has arrived at the conclusion that whenever the jaundice becomes intense, and more especially if the urine contain the biliary acids, renal tube-casts appear in the urine. He therefore considers that the appearance of tube-casts should be classed amongst the more constant symptoms of jaundice. In the cases where tube-casts

were not found, the jaundice was slight from the commencement, or it was passing away when the patient came under observation. The number of casts was very variable; in some cases they were numerous, while in others only two or three could be found in from four to six preparations. The number of casts seems to bear a direct relation to the intensity of the jaundice. In the great majority of cases the casts were hyaline, some of which contained a variable number of small glistening yellow granules; not rarely, unmistakable epithelial casts appeared, containing closely crowded stained kidney-epithelium. There were also found kidney-epithelium unconnected with casts, bladder-epithelium, and leucocytes. The author concludes that the bile-acids are the cause of the renal tube-casts in these cases; and he assumes that the phenomena have hitherto escaped notice, or have been considered as accidental, or at the most as an occasional result of acute yellow atrophy of the liver.

[Upon this the Reporter begs to state that in his book on *Diseases of the Kidney*, published in the year 1852, he has referred to this subject in the following terms (pp. 108-9). 'When from any cause the functions of the liver are so imperfectly performed as to allow of bile accumulating in the blood, the urine is found to be deeply tinged with some at least of the constituents of the biliary secretion; and on a microscopical examination of the urine, we find the renal secreting cells in variable numbers, some being scattered, while others are entangled in moulds of the kidney-tubes; and all of them coloured by the bile contained in them. Thus it appears that, when the blood circulating through the kidney contains an excess of bile, the renal cells in eliminating these materials become deeply tinged by it, and many of them are so far modified as to be shed by a process of desquamation.'

Again, in the Reporter's recently published *Lectures on Bright's Disease*, the subject is thus referred to (p. 31). 'When in consequence of obstruction of the gall-duct, or other disease or accident, causing an accumulation of bile in the blood, bile-products in large quantities are secreted by the kidneys, desquamated renal epithelium tube-casts, and sometimes albumen, are found in the urine. The excretion of these new products sometimes causes a mild form of desquamative nephritis. I refer to these facts to illustrate a physiological principle.' The physiological principle here referred to is, that the desquamation of the renal epithelium is a result of the excretion of some abnormal materials by the gland.—*Rep.*]

GEORGE JOHNSON, M.D.

BEARD ON SPINAL CONGESTION AND LOCOMOTOR ATAXIA.—In a paper in the *Philadelphia Medical Times* for January 24, 1874, Dr. George M. Beard makes the following assertions with regard to spinal congestion. 'The groups of sensory and motor symptoms that are caused by spinal congestion are as follows.'

1. Headache. 'The nerves that ache are those which take their origin in the cervical region of the cord, or in the lower part of the brain.'

2. Stiffness of the neck, with tenderness and pain in the cervical vertebræ.

3. Heat and pain down the spine, with or without tenderness.

4. Feeling of pressure on the chest.

5. Dyspnoea and palpitation. 'These symptoms

would very naturally arise from severe congestion of the dorsal region of the cord.'

6. Feeling of constriction around the abdomen.

7. 'Incontinence, with dribbling of the urine, constipation, or diarrhoea.'

8. Excessive sexual excitement, with erections and emissions. This 'is analogous to the startling activity and brilliancy of the brain which sometimes precede insanity, or to the ferocious and gnawing appetite that attends the early stages of dyspepsia.'

9. Sensory and motor disturbances of a mild character, in the upper and lower limbs. 'There may be mild hyperæsthesia or anæsthesia.' Neuralgic pains of a sharp, shooting, boring, stabbing character, run up and down the limbs. Twitchings of the muscles or fibrillary contractions. Jerking of the body or limbs on going to sleep.

10. Fixed paralysis of motion or sensation, or of both, in the limbs, with or without muscular contraction.

'Nearly all these symptoms, or at least very many of them, may come from precisely the opposite condition, anæmia, with exhaustion of the cord.' He who says it is an easy matter to distinguish between the symptoms due to congestion and those due to anæmia, 'is either a very great genius or a very great fool.'

The diagnosis must rest upon the following points.

1. The history of the case. 2. The symptoms coming from spinal congestion are more or less fixed and permanent, and are usually worse when the patient is in a recumbent position. 3. Spinal congestion is more likely to occur in the sanguine, bilious, and lymphatic temperaments; exhaustion in the nervous temperament. 4. The female sex is less disposed to congestion of the spine than the male sex. 5. The tenderness over the vertebræ is usually much greater when the cord is exhausted than when it is congested. 6. The result of treatment is invaluable to clinch the diagnosis. If we fancy the symptoms to be due to anæmia, and find that strychnine makes the patient worse instead of better, a mistake in diagnosis has been made, and we may turn 'right about face' and give ergot.

Dr. Beard's treatment for spinal congestion is electricity, either galvanism or faradism, and the free use of ergot and iodide of potassium.

[Many of the above assertions are startling and novel; but Dr. Beard does not lay before us the facts upon which they are founded.—*Rep.*]

G. V. POORE, M.D.

SURGERY.

MOSETIG-MOORHOF ON INTRABUCCAL RESECTION OF THE INFERIOR DENTAL NERVE AFTER PARAVICINI'S METHOD: RECOVERY.—Dr. Mosetig-Moorhof, of Vienna, says (*Wiener Medizinische Wochenschrift*, March 21, 1874), that the various methods for the division of the inferior dental nerve which have been proposed in cases of severe neuralgia are as follows. The vast superiority of the process invented by Paravicini will be at once perceived.

1. Division of the cheek through its entire thickness, at a spot corresponding with the anterior edge of the ramus of the jaw, without dividing the mucous membrane.

2. Division of the cheek at a spot corresponding with the sigmoid notch, in a direction outwards.
3. Division of the soft parts over the posterior border of the ramus of the jaw, in a direction from behind and below, inwards and upwards.
4. Removal of a portion of the angle of the jaw.
5. Trephining the ramus above the commencement of the canal after division of the soft parts.

The method adopted in the case reported by Dr. Mosetig-Moorhof was as follows. The mouth being widely opened, the mucous membrane is divided along the anterior border of the ramus of the jaw, and the finger is directed between the bone and the internal pterygoid muscle to the lingula. The separation of the inferior maxillary from the gustatory nerve is not difficult, since the former passes into the canal and the latter does not. The operation, however, is so far difficult, since the eye cannot be of any assistance, and the operator must trust to his power of touch, and has to work in a very constricted and narrow space; but the result is great relief to the patient, and no disfigurement at all as there is after the before-mentioned methods.

Dr. Mosetig-Moorhof operated on his patient on July 31, and, having found the lingula, divided the internal lateral ligament of the jaw. The nerve and artery were secured by a thread, which was passed round them by means of a small aneurism-needle (it being absolutely necessary to fix them in order to cut through the nerve centrally), and so removed a piece of it. A piece of nerve about four inches long was removed. The reaction which followed a cessation of the neuralgia, and a want of feeling of the right side of the lower jaw, was trifling. Beyond a swelling of the side of the face and pharynx, with some slight difficulty of swallowing, the patient had little to complain of.

The patient was perfectly well by the end of January, and had lost all symptoms of neuralgia.

EDWARD BELLAMY.

SAYRE ON FRACTURE OF THE CLAVICLE.—Dr. L. A. Sayre, in a clinical lecture at the Bellevue Hospital in New York (*Philadelphia Medical Times*, April 11), says that fracture of the clavicle is one of our most common fractures, yet is most difficult of treatment, as is indicated by the endless variety of apparatus suggested for its adjustment and retention. Dr. Paul Eve, of Nashville, Tennessee, has even resorted to cutting down on the fractured ends and wiring them together. In fractures we have one general law of treatment: extension and counter-extension in the proper direction until accurate adjustment, then retention. In these cases, for several years Dr. Sayre has used, with marked success, two strips of strong adhesive plaster (Maw's moleskin), without any axillary pads, three or four inches wide, one long enough to surround the arm and go completely around the body, the other to reach from the sound shoulder around the elbow of the fractured side and back, to the place of starting. The first piece is passed around the body below the axillary margin, and is pinned in the form of a loop sufficiently large to prevent strangulation, leaving a portion on the back of the arm encased by plaster. The arm is then drawn downward and backward until the clavicular portion of the pectoralis major muscle is put sufficiently on the stretch to overcome the sterno-cleido-mastoid, and thus pull the inner portion of the clavicle down to its level. The plaster is then carried smoothly

and completely around the body and pinned to itself on the back, to prevent slipping. This first strip fulfils a double purpose. First, by putting the clavicular portion of the pectoralis major on the stretch, it prevents the clavicle from riding upward; and, second, by acting as a fulcrum at the centre of the arm when the elbow is pressed downward, forward, and inward, it forces the other extremity of the humerus, and with it the shoulder, upward, outward, and backward. It is kept in this position by the second strip, applied as follows: commencing on the point of the shoulder of the sound side, drawing it smoothly diagonally across the back to the elbow of the fractured side, where a slit is made in its middle to receive the olecranon; a soft piece of muslin over the joint of the elbow is of advantage. Before applying the strip, an assistant presses the elbow well forward and inward, and retains it there while the plaster is continued over the elbow and fore-arm, pressing the latter close to the chest and securing the hand near the opposite nipple, crossing the shoulder at the place of beginning, and there securing by pins. The patient can be well shaken and no displacement occur. If any slack occur it should be taken up at once. Bandages do not stick, but slip around the body and give no firm support. The plaster should never be warmed. Sternal dislocations of this bone are also to be treated in this way, with the addition of a third piece of plaster, and a pad over the point of displacement. The strip passes diagonally across the shoulder and body, and its ends are secured to the first piece, or both.

SAYRE ON SUBPERIOSTEAL RESECTION OF THE HIP-JOINT.—In a clinical lecture, Dr. Sayre, of New York, describes the following as his plan of performing subperiosteal resection of the hip (*Philadelphia Medical Times*, April 11). Take a short, strong knife, send it home to the bone at a point midway between the anterior superior spinous process of the ilium and the top of the trochanter major; carry the knife downwards in a slight curve until you reach a point opposite the trochanter minor, not passing over the centre of the trochanter, but half-way between its centre and outer border. The incision should be six or eight inches long; boldly divide all tissues and the periosteum, and do not dissect as for hernia. Opposite the trochanter minor, divide with a probe-pointed bistoury the periosteum as far around the bone as possible, at right angles to the first incision, and at its lower limit; a knife is used to cut the rotators attached in the digital fossa; peel off all the periosteum carefully and effectually, from the diseased bone; by adducting the limb slightly, the bone is denuded of periosteum down to the trochanter, where a chain or metacarpal saw divides the shaft. Several sections are often needed to reach sound bone; this is done by pushing the ends of the femur through a slit in the periosteum. We then gouge out diseased bone from the acetabulum, wash out the wound, and fill it with balsam of Peru and oakum, thus allowing more space for new bone, the periosteum being left intact. Never leave the trochanter major; it would plug up our drain-pipe from the diseased acetabulum. Free drainage is essential to success; hence use oakum, and by no means lint or cotton. Place the patient in 'wire breeches'—a machine consisting of wire frame, which encloses the body from head to feet, fixing immovably the whole lower half of the body. The sound limb is secured to one leg of the machine,—care being used to stiffen the knee, thus

The foregoing experimental results of the analyses of the samples of milk taken direct from the udders of forty cows belonging to three large dairies, prove that the standard for genuine or normal milk which has recently been put forward for the guidance of city analysts is far too high. The assumed standard declares that normal milk must have 12.5 per cent. of total solids, of which 9.3 per cent. are solids not fat, and 3.2 per cent. must be fat. This so-called standard has been assumed in the face of an analysis

of average country milk, which is also quoted, and which average milk contains actually less than the assumed standard which ought to indicate minimum and not average quality of genuine milk. According to this so-called standard, adopted in so arbitrary a manner and blindly followed by town analysts, by far the greater number of the samples of milk taken direct from the udders of the forty cows in the dairies A. B. and C. would be held to be adulterated, either with water or with skimmed milk, or with both; and, taking the average of the whole of the samples of milk, which shows only 2.44 per cent. of fat, we find that it contains about 25 per cent. less fat than the assumed standard, so that the entire bulk of the genuine milk yielded by the forty cows, if mixed together in equal quantities, would be held to be adulterated with about 25 per cent. of skimmed milk. The results obtainable from the assumed high standard should not, therefore, be depended upon; and yet, by calculation from such data, carried out to the tenths and hundredths of a grain, we find prosecutions taking place and convictions attempted to be obtained and enforced.

The assumption of a definite high standard for milk, and the further assumption that all milk is of equal, or nearly equal, quality, is even directly contrary to all previous researches on the subject, as shown by the great diversity in the composition of milk as given in analyses published in different chemical treatises. Even the amount of fat in cows' milk on which the proportion of adulteration with skimmed milk is based, is authoritatively stated to be sometimes as low as 1.25, 1.4, 2.13, though ranging up to 3.42, 4.56, &c., showing great variations in the amount of this ingredient. Probably the best evidence on this point is given in a Government report, written by Professor John Wilson in 1866, where the Danish dairy farms are referred to, and where the variations in the amount of fat in milk are observable in the amount of milk required to yield a pound of butter at different seasons of the year. The proportions range in the same dairy farm from 19½ to 33 lbs. of milk, and in another dairy farm from 21½ to 31½ lbs. of milk, which must be employed to yield a pound of butter.

Since the analyses of the samples of milk were made by me, and I was called upon to give evidence in two cases of alleged adulteration, there has been published in the *Pharmaceutical Journal*, an excellent paper by Professor Voelcker, 'On Milk, its Supply and Adulteration,' in which he gives the results of the analyses of the milk yielded by the herd of cows at the Royal Agricultural College, Cirencester, during eleven months of a year, and shows the great variations which occur in the quality of the milk obtained from the whole herd. The total solids range from 9.3 to 13.8 per cent. and the fat from 1.79 to 4.12 per cent.; and, judging from the assumed high standard adopted by some town analysts, the whole runnings of this herd of cows would have been declared to be adulterated for two-thirds of the year.

The Adulteration Act was framed for the protection of the public, and, if properly worked out, would undoubtedly lead to the suppression of adulteration in food, drink, and medicine, and would at the same time be of national service, and a protection to the honest merchant against the dishonest and fraudulent dealer. But if anything is calculated more than another to render the Act inoperative and untrustworthy, it is the framing and setting up of a standard

of genuineness which can seldom be reached by the genuine article itself; and by blind adherence to which the majority of the samples of the genuine and unadulterated material must be declared to be mixed and adulterated.

Considering the great variations in the quality of genuine milk and the beneficial effects of the good feeding of the cows upon the milk, it is worthy the attention of dairymen whether they would not sell their milk under a guarantee of quality, say 11 per cent. of total solids, of which 9 are solids not fat and 2 are fat. In large dairies this could be ensured by mixing the whole runnings of the milking of the herd in a common tank, and thereafter filling the sale or town cans from this mixture of the whole milking. Milk could thus be sold with a guarantee which would give certainty to the purchaser that he was obtaining not only genuine milk, but genuine milk of good quality.

Since reading the foregoing paper before the meeting of the society, I have had the opportunity of testing the quality of the milk yielded by the cows in another dairy which supplies milk to Edinburgh. This dairy, which we may call dairy D, contained six cows at the time when complaints were lodged against the genuine character of the milk, and I have tested the quality of the milk given by each of these six cows in the morning, at noon, and in the afternoon. My assistants, Mr. William Ivison Macadam and Mr. Charles Edward Bourchier, went to the dairy on each occasion, inspected the milk-pails, saw all the cows milked, sampled each milk from the whole runnings taken from the udder of each cow, and brought the samples to me in a locked case. The analyses were made by me in the manner stated before, and the results obtained are given in the following table.

| No. of Cow. | Specific gravity of milk. | Cream per cent. by vol. | Total solids per cent. by weight. | Solids not fat, per cent. by weight. | Fat per cent. by weight. | Ash in solids per cent. by weight. |
|--|---------------------------|-------------------------|-----------------------------------|--------------------------------------|--------------------------|------------------------------------|
| <i>Morning Milk.</i> | | | | | | |
| 1 whole runnings | 1034.5 | 6 | 11.52 | 9.76 | 1.76 | 0.72 |
| 2 " | 1033.3 | 5 | 10.63 | 9.05 | 1.58 | 0.68 |
| 3 " | 1033.4 | 6 | 10.96 | 9.22 | 1.74 | 0.69 |
| 4 " | 1032.3 | 8 | 12.29 | 9.75 | 2.54 | 0.74 |
| 5 " | 1033.3 | 6½ | 11.04 | 9.18 | 1.86 | 0.71 |
| 6 " | 1034.1 | 6 | 10.95 | 9.21 | 1.74 | 0.73 |
| Average of morning milk | 1033.5 | 6½ | 11.23 | 9.36 | 1.87 | 0.71 |
| <i>Noon Milk.</i> | | | | | | |
| 1 whole runnings | 1033.1 | 8 | 12.94 | 10.23 | 2.71 | 0.71 |
| 2 " | 1030.9 | 9 | 12.78 | 9.66 | 3.12 | 0.70 |
| 3 " | 1032.2 | 7 | 11.42 | 9.26 | 2.16 | 0.72 |
| 4 " | 1032.3 | 8 | 11.98 | 9.37 | 2.61 | 0.73 |
| 5 " | 1030.7 | 8½ | 12.66 | 9.70 | 2.96 | 0.70 |
| 6 " | 1030.9 | 10 | 13.73 | 10.26 | 3.47 | 0.72 |
| Average of noon milk | 1031.4 | 8½ | 12.58 | 9.74 | 2.84 | 0.71 |
| <i>Afternoon Milk.</i> | | | | | | |
| 1 whole runnings | 1033.0 | 7½ | 12.52 | 10.08 | 2.44 | 0.73 |
| 2 " | 1031.1 | 8 | 12.09 | 9.33 | 2.76 | 0.71 |
| 3 " | 1030.2 | 10 | 13.11 | 9.86 | 3.25 | 0.73 |
| 4 " | 1028.3 | 8 | 11.25 | 8.62 | 2.63 | 0.74 |
| 5 " | 1031.4 | 9½ | 12.81 | 9.69 | 3.12 | 0.70 |
| 6 " | 1030.8 | 10 | 12.84 | 9.58 | 3.26 | 0.72 |
| Average of afternoon milk | 1030.8 | 9 | 12.43 | 9.52 | 2.91 | 0.72 |
| Total average of morning, noon, and afternoon milk | 1031.9 | 8 | 12.08 | 9.54 | 2.54 | 0.71 |

These results prove that, taking either a single cow or the whole herd, the morning milk did not come up to the assumed high standard of 12.50 of total solids, of which 9.30 are solids not fat, and 3.20 are fat; the noon milk only gave one sample above the standard, whilst the five remaining samples were below the standard; and the afternoon milk gave two samples equal to the standard and four samples below it. Of the whole eighteen samples only three were up to the standard and fifteen were below it, so that the milk of these fifteen cows would have been declared mixed or adulterated with water, or skimmed milk, or with both water and skimmed milk, according to the assumed high standard. Again, taking the whole morning milk, the whole noon milk, or the whole afternoon, separately or together, the entire runnings of this dairy would on the same standard be declared to be adulterated.

The differences in the quality of the milk yielded by the same cow at different periods of the day, and the variations in the character of the whole milk given by the whole herd at morning, noon, and afternoon, are markedly observable in the results obtained from dairy D. It is quite apparent that the morning milk is the poorest, whilst the noon and afternoon milks are decidedly richer. It may be stated that all of those cows were of the Ayrshire breed, that they were fed on druff, turnips, oats, straw, and peas meal; that no. 1 cow calved in August and the milk was almost out, nos. 2 and 5 calved in February, no. 3 in January, and no. 6 in September, and the milk of the latter was nearly done.

In conclusion I may mention that out of 66 samples of genuine milk taken from 46 cows, and which have been fully analysed by me, only eleven of these samples came up to the high standard of 3.2 per cent. of fat, of which one sample was of the last runnings of the milk, and three samples were deficient in the high standard of 9.3 of solids not fat; so that only seven samples of the whole runnings of milk came up to the assumed high standard on all points. Neither the average quality of the genuine milk obtained from any one of the four dairies nor the average quality of the genuine milk yielded by all the dairies taken together was equal to the arbitrary high standard assumed by city analysts.

DUBLIN ANALYST'S REPORT FOR 1873.*—During the year 1873 Dr. Cameron made 386 analyses of food and drink, of which 108 were adulterated, 16 pure, but of bad quality, and 262 pure. Of the adulterated specimens, the milk was adulterated with from 12 to 120 per cent. of water, but with no other adulterant. The bread was adulterated with alum, and in some instances it contained a large quantity of sandy matter. The flour was adulterated with alum, and six of the samples contained grit or sandy matter. The tea was composed of exhausted and decayed leaves, strengthened by the addition of some stringent gums. The coffee was adulterated with chicory and burnt sugar. The rum was wholly spurious, being new whisky, sweetened with treacle, and being 25 per cent. under proof. The butter examined contained no foreign matter, but four samples were rancid and unfit for use. The oatmeal was very mouldy, full of fungoid growths, and unfit for use.

* Twelfth Annual Report of Charles A. Cameron, Ph.D., M.D., Analyst to the City of Dublin.

Twenty-three well-waters used in Dublin were examined, and of these sixteen proved to be loaded with dangerous organic impurities, and were utterly unfit for use.

Fourteen specimens of green wall-paper on sale in the city were examined, and fourteen of them found to be coloured with arsenical green.

The following quantities of food were condemned as being unsound.

| | lbs. |
|--------------------------------|---------|
| Beef | 147,815 |
| Veal | 2,100 |
| Mutton | 6,640 |
| Pork | 19,356 |
| Bacon | 7,139 |
| Fish | 34,220 |
| Butter | 72 |
| Fruit and vegetables | 450 |
| Bread | 6,000 |
| Flour | 560 |
| Tea | 200 |
| Total | 224,552 |

The fines and costs imposed on 43 persons convicted for selling adulterated food amounted to 252*l.* 11*s.*

Of the 21 persons convicted for selling or being possessed of diseased or unsound meat, 11 were fined 49*l.* 17*s.* The others, 10, were imprisoned—3 for 3 months each, 3 for 2 months each, 2 for 6 weeks, and 2 for 14 days each.

During the last four years 1,438 sanitary analyses have been performed, 1,432,521 lbs. of unsound food condemned, 139 persons fined for selling adulterated food, 72 persons fined for selling or having in their possession diseased meat, and for the latter offence 21 persons were imprisoned for periods varying from 14 days to 3 months. The fines imposed amounted to nearly 1,000*l.* The names, offences, &c., of several adulterators were advertised at their own expense in the newspapers.

THE DRAINAGE OF COWFOLD.—The medical officer of health for East Sussex, Dr. E. F. Fussell, has just presented to the rural sanitary authority a concise and able report on the drainage of Cowfold and Ardingly, and on some other sanitary matters in connection therewith.

The sewerage seems to be very defective, the main sewer commencing as a pipe, being constructed as a drain partly built of brick and partly of stone, and finishing up as an open ditch, which passes 'within a few feet of the back premises of a large private school, taking the slops but not the sewage of this establishment,' and ends by joining a stream, the water of which the cattle drink. The medical officer rightly denounces this state of things as injurious to health and proposes three alternatives, viz. :—

1. To construct a proper well ventilated sewer, establish a system of precipitation near the present outfall, filter the effluent water and discharge it into the stream.

2. To divert the sewage into a cesspool in the field adjoining the outlet and utilise it by pumping it over the land for surface irrigation.

3. To leave the present sewer for the conveyance of surface-water only, allowing no overflow of privies and no slops to be discharged into it, and requiring the owners of houses to construct earth or ash closets.

The first plan he condemns as costly, complex, and a probable failure, and certainly if the subsequent filtration were not very thoroughly performed, or if

the effluent water from the precipitation process were not used for irrigation, it is more than likely that such would be the case.

The second suggestion has the difficulty that the consent of the landowner and tenant would be required, that the rain-water would probably have to be separated from the sewage proper, so that it might not be too dilute, and that subsequent owners or tenants of the land might object; these are serious difficulties, which might, however, be met by the purchase by the sanitary authority of a suitable piece of land, and we consider that sewage irrigation schemes should not be undertaken unless this is done; part of the sewage may be let out to farmers around, and this is done at some places; but the sanitary authority should have within their own control the means of satisfactorily purifying the sewage of the district. The difficulty suggested that if the rain-water were diverted the sewer would require flushing occasionally by a water cart, would be met by making it possible to divert the surface-waters into the sewer when necessary.

The third plan is the one to which the medical officer leans, and there can be no doubt that the substitution of efficiently constructed ash- or earth-closets, with frequent removal of the contents, for privies, would be a great improvement, especially as waterclosets do not appear to be in use at present at any rate; we have our doubts, however, as to whether it would be practicable to keep the dirty water, slops, &c., out of the drains, and expect that the question of purifying the sewage will come up again sooner or later; still the plan proposed would be, we repeat, a great improvement.

Dr. Fussell urges 'that the sanitary authority should compel all owners of cottages to lay on the water from the main,' and advises that in those places which the main does not reach the drinking-water should be boiled before being used.

DERMATOLOGY.

SIMON ON IMPETIGO CONTAGIOSA.—We extract the following from the *Berliner Klinische Wochenschrift* for February 23. Dr O. Simon brought forward two cases of the above disease as the first observed in Germany [he must have excluded the Austrian Empire pathologically as well as politically from *Deutschland*], which were discussed at the Medical Society of Berlin, last December. The first patient was a painter; and soon afterwards his wife was also attacked. The second case occurred in the child of a weaver, who caught the affection at school, and transmitted it first to his father, and then to his mother. The third instance [apparently not exhibited] was that of a railway navy, who caught it from his child and gave it to his wife.

After referring to the name 'Impetigo Tartini' given to this disease by Mr. Dunn, to Dr. Tilbury Fox's careful description of it in 1864, and to Kaposi's discovery of a fungus in 1871, the author stated that microscopical examination in his cases had only shown the presence of *Acarus* [*Demodex*] *folliculorum*, ordinary micrococci, and, in a single instance, spores and mycelium like those of *Achorion Schaeleinii*. He pointed out the difference between impetigo contagiosa and ordinary pustular eczema, in the isolated localisation of the eruption, the absence of infiltration of

the skin, of redness and of subsequent desquamation, beside the character of contagion.

Dr. Lewin quoted a case from Taylor published in the *Boston Medical and Surgical Journal* for 1872, where the disease affected three children and their mother. He could not accept it as a *morbus sui generis*, but regarded all pustules as more or less contagious, and quoted instances in which ordinary vesicular as well as impetiginous eczema was contagious. Failure to inoculate with ordinary pustules proved nothing, for the same often occurs with such undoubtedly contagious diseases as Pemphigus [?] and Molluscum contagiosum.* He thought the case in which achorion was found must be regarded as one of ordinary favus (*Tinea favosa*). In reply, Dr. Simon argued that, though any pustule might be contagious, it would only produce another like itself, not a complete disease with its characteristic symptoms and course. Moreover, he thought that the apparent contagion of cases of ordinary eczema was really to be explained as the result of a common cause, e.g. bad soap in a household, which he had seen produce an apparent epidemic of eczema. He could not admit any relation of impetigo contagiosa to scrofula, nor that it in the least resembles what used to be called impetigo, but is now generally recognised as a mere variety of eczema.

NEUMANN ON CUTANEOUS ERUPTIONS FOLLOWING THE USE OF BROMIDE OF POTASSIUM.—Neumann (in a paper read before the k.k. Gesellschaft der Aerzte of Vienna, February, 1873) describes two cases of cutaneous eruption following the internal use of bromide of potassium. A child, a year and a-half old, had been taking a grain of the salt morning and evening for convulsions, and the dose was gradual raised from one to five grains twice a day. When seen, it had suffered four weeks from an eruption of suppurating sebaceous tumours, of various sizes, on the forehead, cheeks and limbs. Two (on the face and leg) were as large as half-crowns. There were no comedones, and the age of the patient alone [beside the distribution of the affection] put the question of acne aside; while the author regards the fact of suppuration having occurred in almost all the tumours as negating the diagnosis of molluscum sebaceum [M. contagiosum of English authors]. The appearance of fresh nodules only ceased when the administration of the drug was stopped.

The second case was that of a man, aged forty-two, who during twelve months had taken from fifteen to thirty grains of bromide of potassium every day, for headache. After about nine months furunculoid swellings appeared on the forehead, the neck, and the parts of the face which were covered with hair. (There is no further evidence given of the etiology of the eruption.)

KOBNER ON ZOSTER.—In a paper read before the Silesian Gesellschaft für vaterländische Cultur, May 30, 1873 (quoted in Pick & Auspitz's Journal) Köbner describes a typical case of zona following the distribution of the small sciatic nerve and its pudendal branch, over the back of the thigh, half the perineum,

* In Virchow's *Archiv* for 1873 is a paper by Dr. Bollinger on this disease (which he most inconveniently calls Epithelioma contagiosum), where evidence is offered of its identity with a contagious disease known among poultry as hen-pox.

scrotum, and penis. The eruption was ascribed by the patient to his having sat down while hot upon damp grass.

WIGGLESWORTH ON PRURIGO FEROX.—Dr. Wigglesworth (*American Journal of Syphilis and Dermatology*, vol. iv.), describes a case of prurigo ferox universalis (Hebra's prurigo) in a boy aged fourteen. The papules were most numerous on the flexor side of the wrist, and on the palms and soles, but were more or less present everywhere, least so in the face. There was great anæmia. The treatment was, internally, cod-liver oil and steel, with chloral to procure sleep; externally, Hebra's modification of Wilkinson's ointment. [℞ Sulphuris sublimati, Olei fagi aa ʒvj, Cretæ preparatæ, ʒiv, Saponis viridis, Axungiæ aa libram j.—*Rep.*]

Under this treatment the symptoms quickly subsided, and the skin was restored to its healthy condition.

HOFMANN ON A CASE OF CHROMIDROSIS.—Hofmann (*Wiener Medizin. Wochenschrift*, 1873, no. 13), puts on record a case of chromidrosis of the scrotum and adjacent part of the thigh in a man seventy-two years old. The colour was bluish-black, and indigo was detected; after reducing the pigment to indigo-white, it was seen to regain its colour by exposure to the air.

OLLIVIER ON PARTIAL HYPERIDROSIS OF THE FACE.—Dr. Ollivier (*Gazette Médicale de Paris*, 1873, no. 24), relates a remarkable case of local hyperidrosis of the part of the face supplied by the second division of the fifth nerve, in a man whose maternal grandfather, a daughter of the latter, with one of her children, were subject to the same curious affection. The mother of the patient was free.

P. H. PYE-SMITH, M.D.

LEISRINK ON LIGATURE OF THE FEMORAL ARTERY IN ELEPHANTIASIS OF THE LEG.—Dr. Leisrink relates (*Deutsche Zeitschrift für Chirurgie*, December, 1873) the case of a woman who consulted him on account of elephantiasis of the right leg, from which she had suffered for twenty-five years. It had followed repeated attacks of erysipelas. From the ankle-joint to more than half way up the leg, the limb was covered with a crust like the bark of an old tree. From large and deep furrows in it was discharged an abundant quantity of a limpid fluid. She was unable to use the limb, and her general health was much impaired.

Dr. Leisrink tied the femoral artery below Poupert's ligament. The result of the operation was that the discharge ceased, the patient became able to use the limb, and her general condition improved. The following are the measurements round the limb, in inches, before and ten months after the operation.

| | Before Operation. | After Operation. |
|--------------------------------|----------------------|---------------------|
| Below the knee . . . | 17'3 . | 13'7 |
| At the middle of the leg . . . | 22'8 . | 13'4 |
| Above the ankle . . . | 16'5 . | 5'1 |

A. HENRY, M.D.

RECENT PAPERS.

Communication of Herpes to Man from Animals suffering from Herpes and Scabies. By Dr. P. Michelson. (*Berliner Klinische Wochenschrift*, nos. 11 and 12, 1874.)

NEW INVENTIONS.

J. & F. ALLEN'S IMPROVED ENEMA AND DOUCHE WITH BIDET.

This apparatus is made of strong tin, and is mounted on a stand with mahogany top, and enamelled white inside, the outside enamelled in imitation of wood, marble, or china, as desired. The back part forms the bidet; the front forms a compartment for holding warm or cold lavements or injections, and in which the pump is fixed. There is also a silvered jar for medicated lotions or enemata. Both pump and jar can be instantly removed for cleansing, by lifting out



the small band round the pump, by which it is held firmly in its place. The tubes from the pump are jointed in such a manner that they can be raised or lowered at pleasure; and each of the injection-tubes can be reversed from the end to the middle joint, or vice versa, so as to serve every form of application, for male or female use. It has an elegant appearance, when placed in any bed or bath-room, is most simple in construction, requires no attendant by the person using it, is the only apparatus that can be used as a douche or enema with comfort, and we believe it to be unique. It is also made to pack up for travelling.

PHOSPHORISED COD-LIVER OIL.

The therapeutic uses of phosphorus have lately attracted greatly increased attention in the profession. There is a general concurrence of opinion as to its great value in many forms of nervous exhaustion, and there are many examples of its almost magical effect in some cases of obstinate neuralgia. Messrs. Young and Postans, 35 Baker Street, have forwarded to us a preparation of phosphorised cod-liver oil, one of the most useful combinations in which phosphorus could be ordered. Its flavour is well disguised, so that the preparation is as nearly tasteless as possible. It is a very desirable as well, we think, as a popular medicine.

BROMO-CITRATE OF LITHIA WATER.

This mineral water is newly introduced by Mr. Robert Hogg, 9 Albion Place, Hyde Park. It is a

very elegant and useful combination of remedies for which, in cases of chronic rheumatism, physicians have a well-founded predilection. It contains bromine, with the citrates of lithia, potash, and ammonia in the doses usually prescribed, and they may of course be varied to order. This is a very pleasant and useful mode of prescribing, and we think this water is likely to be much appreciated.

REVIEWS.

Asthenic Insanity. By STRETHILL H. WRIGHT, M.D. Edinburgh: Oliver & Boyd.

Dr. Wright has collected various papers published by him in the *Edinburgh Medical Journal*, on the varieties of 'Asthenic Insanity,' which is, he says, a constitutional malady. It is a disordered state in which the vigour of the whole organism is much reduced—reduced to an asthenic condition; but wherein disorder of the mental operations is manifested by the patient as the most prominent symptom of the state of general asthenia to which the brain, in common with the whole organism, has been reduced. On the contrary, 'sthenic insanity' expresses the nature of those cases where mental disorder depends, not upon diminution of the constitutional vigour, but upon the undue excitement of the mental functions by various influences originating from constitutional conditions, temporary or permanent. The term 'asthenic' does not define the nature of the mental manifestations, but denotes a general depravity of the constitution, in consequence of which brain-disorder arises. The brain may be primarily at fault, or its action may be directly influenced by the disorder of some organ more remote. The subject is treated under three heads.

1. When mental disorder depends on constitutional morbid modifications, which do not intrinsically progress towards a fatal result, and are not irremediable.

2. When mental disorder depends upon constitutional modifications of an irremediable nature.

3. When the complexion of the insanity, originally of another type, assumes an asthenic caste in consequence of the supervention of some bodily disorder of a special kind.

Under the first head cases of insanity are ranged, in which mental disorder results from constitutional modifications dependent upon the severe or protracted depressing influence of physical disorder—exhaustion of the brain and nervous system by undue exercise or trial of their special energies. These varieties are illustrated by cases of patients admitted into the Royal Edinburgh Asylum.

Under the second head may be classed the great majority of cases of recurrent insanity, especially those where insanity recurs at short intervals; where it is excited by trivial causes, and where the asthenic condition of the constitution generally, but especially if the nervous system, is congenital; where the predisposition is not hereditary, but acquired by prolonged or severe periods of trial, the constitutional vigour being materially and permanently depressed; and, finally, those cases in which insanity is produced as a symptom of the general constitutional incompetence caused by chronic disease of a specific kind.

The cases belonging to this variety are incurable. The state of the patients is susceptible of ameliora-

tion, but never of lasting recovery: they are never fitted for holding office involving personal responsibility during a prolonged period.

A case is given illustrating the third variety. The patient, when admitted, was in a state of sthenic insanity, and remained in this state so long as her bodily health continued robust; but when her constitutional vigour failed—when symptoms of an irremediable organic disease (phthisis pulmonalis) of an asthenic kind manifested themselves—then also a change was noted in the nature of her mental symptoms.

In forming an opinion as to the chances of recovery in a case where there is no specific organic disease, the history is of great importance. If the general health previously to the attack have been good, if there be no history of hereditary predisposition, if there be a clear account of causes, which from their gravity may well be accredited with the production of the asthenic state of constitution which produces mental disorder, then strong hopes of a recovery may be entertained.

If, on the other hand, the patient have inherited an insane predisposition, if the asthenic constitutional state have resulted from depressing circumstances which have been long in operation, and from the effects of which the constitution shows no disposition to rally, or if the general asthenia have resulted from incurable organic disease, the prognosis is of the most unfavourable character.

In subsequent papers, Dr. Wright gives cases illustrating these three classes. The first contains two cases of the second variety; in another, he considers the insanity due to constitutional syphilis; and one is devoted to the history of a patient suffering from what he terms ovario-mania, the uterus and ovaries being completely solidified by cancerous deposit. G. FIELDING BLANDFORD, M.D.

Schwalbach. By THEODOR FRITZE, M.D. With steel engravings. (Darmstadt, 1873.)

This is a clear, well put together account of Schwalbach, meant for popular use, and not praising the waters extravagantly. The book has very pretty little steel engravings, which will help to make it popular. It is a pity that its English is not free from Germanisms. J. MACPHERSON, M.D.

MISCELLANY.

MONUMENT TO LIEBIG.—The subscriptions collected for a monument to the late Baron Liebig amount to about 6,000 thalers.

MADAME LENOIR JOUSSEREAU, who died at the beginning of March, left her entire fortune to the Paris hospitals. It amounted to over ten million francs. She desired that it should be used for the creation of a special charity to be called Lenoir Jousseureau. She left only 500,000 francs to her distant relatives and attendants.

INTERNATIONAL MEDICAL CONGRESS.—The organisation of an International Medical Congress at Brussels in 1875, is being carried out with great activity. The president is to be Dr. Vlemmckx, president of the Academy of Medicine, who has already presided over other scientific congresses with tact and authority. The Belgian Government has promised its co-operation, but it belongs specially to the members of the medical profession to set their shoulders to the wheel, in order to make the scheme work.

A NEW FUEL.—A new combustible material, to which the name of white coal has been given, has been discovered in the Australian continent. It is formed of vegetable fibres matted together, between which a fine sand is found. It is easily inflammable, and gives a brilliant flame. This white coal, discovered in the Antipodes, has not as yet been dug up to any extent, and will doubtless be found useful as a fuel.

POOR-LAW RELIEF IN PARIS.—The Poor-law Board of Paris has been enabled to increase the annual budget to the amount of 28,150,000 francs, of which 11,500,000 francs are furnished from the municipal funds to supply the deficit in the budget. 20,161 beds have been kept up in the hospitals and refuges, of which 9,311 are for the aged and infirm, 8,277 for the sick, and 2,081 for the insane poor. 111,090 persons have been admitted into the various hospitals and refuges, and 192,000 have been attended to in their own homes, amongst whom were 10,000 lying-in women.

THE KAK-KE.—Dr. Hoffman, in a late number of the *Japan Mail*, gives an interesting description of a species of endemic disease, known as *kak-ke*, peculiar to the islands of Japan. The malady is said to possess considerable similarity to the Indian disease called *beri-beri*, and by the Dutch, and subsequently by other foreigners, was erroneously supposed to be identical with it. It makes its appearance regularly at the beginning of spring, first attacking only such persons as have suffered from it in preceding years, and on the approach of warm weather assails, also, those whom it had hitherto spared. The characteristic symptoms of the disease appear to be pain and stiffness in the lower extremities, accompanied by a diminution of sensibility and cutaneous oedema, beginning with the ankle joints and rapidly extending to the knees. In addition to these symptoms, a simultaneous occurrence of violent palpitation of the heart, to which is occasionally superadded endocarditis. The patient shows a distaste for all pursuits, and more especially those which demand exercise of intellect, while a general sense of drowsy weakness is observable. With the approach of cooler weather, the symptoms tend to disappear, even without treatment, and a slight weakness, often accompanied by anæmia, is all that now remains of the complaint; and this symptom disappears, also, in the course of the winter. In the more severe cases, however, the cure is deferred and is often incomplete, insensibility and palsy of different degrees remaining, occasionally even to the extent of complete paralysis of the upper and lower extremities, with atrophy of the part affected. In other cases, anæmia and general debility, with trembling of the limbs, remain to mark the passage of the disease.

MR. E. BELLAMY has been appointed Lecturer on Anatomy at Charing Cross Hospital.

CHARITABLE PHARMACIES.—The *Voix* of St. Petersburg states that a plan has been laid before the proper authorities for the establishment of a philanthropic pharmacy, which shall be obliged to furnish 30,000 doses of medicine annually, at a fixed price for each of twenty-five copecks (about ninepence halfpenny.) The prescriptions entitling the holders to these medicines are to be at the disposal of the medical men of the city, to be distributed to their most destitute patients. There are many hospitals in St. Petersburg where the indigent sick can obtain medical advice and assistance at a very trifling cost; but up to the present time there has been no low-priced pharmacy, whilst the present high price of drugs renders the establishment of such a charity most desirable.

NOTICE.

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| Britton, Thomas | M.D. | Physician | Halifax Infirmary and Dispensary. |
| Cartwright, S. Hamilton | M.R.C.S. Eng., & L.D.S. | Assistant Dental Surgeon | King's College Hospital. |
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| Dunnage, Arthur R. | M.R.C.S. Eng. | Assistant Surgeon | Central London Ophthalmic Hospital. |
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| Lynn, Robert D. | M.D. | Surgeon | Manchester Eye Infirmary. |
| Morgan, Thomas C. | L.K.Q.C.P. Irel. | Pathological Registrar | King's College Hospital. |
| Pritchard, Urban | M.D. | Assistant Physician | King's College Hospital. |
| Rutherford, William | M.B. | Medical Officer | Aberdeen Dispensary. |
| Smith, Patrick B. | M.B. | Resident House Surgeon | New Eye Infirmary, Glasgow. |
| Whittaker, John T. | M.B. | Assistant Medical Officer | Metropolitan Asylum District Asylum, Caterham. |
| Younger, Edward G. | L.R.C.P. Lond. | | |

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| Pye-Smith, Philip H. | M.D. | Hon. Consulting Physician | British Orphan Asylum. |

RECORD OF VACANCIES.

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POOR LAW AND SANITARY SERVICE.

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| Wellington (Salop) Union, No. 2 District and the Workhouse | Medical Officer | 80 0 0 | 14,698 | 8,317 |
| Sleaford Union { Workhouse. | Medical Officer | 30 0 0 | — | — |
| { Sleaford District | Med. Off. & Pub. Vac. | 50 0 0 and fees | 26,870 | 7,743 |
| Margate Urban Sanitary District | Med. Off. of Health | — | — | 12,000 |
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| Cranbrook Union, Benenden District | Med. Off. and P. V. | 43 0 0 and fees | 6,600 | 1,553 |

MISCELLANEOUS.

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| University College | Professor of Physiology | — |
| Westminster Hospital Medical College | Lecturer on Midwifery, &c. | — |

The London Medical Record.

WEDNESDAY, MAY 13, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BARTHOLOW'S EXPERIMENTS ON THE HUMAN BRAIN.

With a boldness which we suspect few experimenters in this country will dare to imitate, Dr. Bartholow, of Ohio, has applied the electric stimulation to the surface of the brain, in a case under his care, where the brain was exposed by an epithelioma of the scalp (*American Journal of the Medical Sciences* for April, 1874). After referring to recent researches on the functions of the brain in lower animals by the reporter and others, Dr. Bartholow proceeds to relate the results of his experiments. The case was one of an Irish domestic servant, aged thirty, who had a considerable portion of the posterior lobes of the brain exposed by disease, without any interruption of its functions. The ulceration occupied the posterior and superior border of both parietal bones. The skull was eroded over a space two inches in diameter, where the pulsations of the brain were plainly seen. Believing that fine needles could be introduced into the brain-substance without material injury to the cerebral matter, Dr. Bartholow first proceeded to test the sensibility of the dura mater to the faradic current. When the irritable granulations of the surface of the ulcer were touched, pain was experienced; but when the needle points were engaged in the dura mater, the patient (Mary) 'declared in answer to repeated questions that she felt no pain.' [This would not agree with the results of irritation of the dura mater, observed by Hitzig and myself, and it is doubtful whether accurate conclusions can be drawn from such an abnormal state of the dura mater as was here presented.—*Rep.*] 'No pain whatever was experienced in the brain-substance proper. Mechanical irritation of the cerebral matter produced no results on motility or sensibility of the extremities.' Two needles were then introduced into the left side of the brain. When the circuit was closed, muscular contractions occurred in the right arm and leg. The arm was thrown out, the fingers extended, and the leg was projected forwards. The muscles of the neck were thrown into action, and the head was strongly deflected to the right. Similar phenomena occurred on the left side, when the right side of the brain was stimulated. Another experiment on the left side caused the same effects as before, along with contraction of the orbicularis oculi and dilatation of the pupils. 'Mary complained of a very strong and unpleasant feeling of tingling in both right extremities, especially in the right arm, which she seized with the opposite hand and rubbed vigorously. Notwithstanding the very evident pain from which she suffered, she smiled as if much

amused.' Another experiment was made on the right hemisphere, and the current was intensified. 'When communication was made with the needles, her countenance exhibited great distress, and she began to cry. Very soon the left hand was extended, as if in the act of taking hold of some object in front of her; the arm presently was agitated with clonic spasms; her eyes became fixed, with pupils widely dilated; the lips were blue, and she frothed at the mouth; her breathing became stertorous; she lost consciousness, and was violently convulsed on the left side. The convulsion lasted five minutes, and was succeeded by coma. She returned to consciousness in twenty minutes from the beginning of the attack, and complained of some weakness and vertigo.' Another experiment on both sides with currents not so strong as to cause epileptic convulsions, gave results precisely the same as those indicated in previous observations.

Two days subsequently, Mary was brought down again for experimentation with the galvanic current, but the proposed experiment was abandoned, on account of the occurrence of a choreic or epileptiform fit.

The next day 'Mary was decidedly worse; she remained in bed, was stupid and incoherent. In the evening she had a [convulsive seizure, lasting about five minutes, confined to the right side. After this attack she lapsed into profound unconsciousness, and was found to be completely paralysed on the right side.' There was paralysis of motion and sensation, along with convergent strabismus and fixed dilated pupils. Without stating when death occurred, Dr. Bartholow gives the account of the *post mortem* examination of the brain. 'A thick layer of greenish-yellow pus extended over the whole of the left hemisphere, and an intense degree of vascularity existed over the whole brain.' No special appearances were observed about the points at which the needles were inserted, and the vascularity and the exudation on the left side were not apparently increased at these places.' Death was attributed to the occurrence of a thrombus in the longitudinal sinus, which was found occupying a point corresponding to the centre of the ulcer. This, along with the arachnoid inflammation, was traced to the extension of the epitheliomatous ulceration from its point of greatest depth.

The point at which the needles were inserted was found in both hemispheres, after hardening in chromic acid, to be the postero-parietal lobule (Turner) or upper parietal lobule (Ecker), into which the needles had been inserted to the depth of one inch, at a distance of about an inch from the longitudinal fissure on the left side, and somewhat deeper and more distant from the longitudinal fissure in the right hemisphere. Dr. Bartholow makes no comments on the facts of his experiments, [Whatever opinion may be entertained as to their propriety, they furnish facts of great interest in relation to the physiology of the brain. The point at which the needles were inserted (the postero-parietal lobule) corresponds homologically with that region of the brain in monkeys which the reporter has shown to be a centre for the leg. In close relation to this in the ascending parietal convolution, and in the upper part of the ascending frontal in advance of the fissure of Rolando, are centres for movements of the arm and hand. The method followed by Dr. Bartholow, of pushing the needles into the brain-substance, favours diffusion of the current, so that the

conjoint movements of the arm and hand may be looked upon as the simultaneous excitation of different individual centres. The results, however, are otherwise quite in accordance with what one would have reason to expect from irritation in this region. They distinctly bear out the anatomical and physiological homology of the brain of man with that of the monkey and lower animals. Owing to the depth of penetration of the needles, there is reason to believe that the stimulation reached the cerebral centres of the tactile nerves, which the reporter has given grounds for supposing to be near this region. This would account for the tingling and painful sensations experienced in the extremities of the opposite side. Of further interest is the occurrence of epileptic convulsions from general diffusion of the irritation when the currents were intensified. This is entirely in accordance with the reporter's observations, and the phenomena of the seizure are a complete parallel to the results in the lower animals which he has elsewhere recorded. The subsequent spontaneous occurrence of epileptic convulsions and ultimate paralysis are clearly accounted for by the inflammatory changes, at first causing irritation and then proceeding to annihilation of the function of the cortical centres, without affection of the lower ganglia. Precisely the same effects are observable in the lower animals.—*Rep.]*

D. FERRIER, M.D.

SANDER ON THE MEDICO-LEGAL ASPECTS OF EPILEPSY.

The *Berliner Klinische Wochenschrift*, nos. 42 and 43, for 1873, contains a paper on this subject by Dr. Wilhelm Sander, of the Berlin (City) Lunatic Asylum, originally read before the Medico-Psychological Association of that capital. As ten columns or more of our contemporary are filled with this paper, we can only give the principal conclusions arrived at by the author. He remarks that some medical men think no disease so well defined, or so striking in its features as epilepsy, but it seems to him that these are just the men who know least about it. The text-book and lecture-room characters of the epileptic fit are by no means essential characters of the disease, for the attacks may really recur in very varied and yet equivalent forms. The time between the attacks is as essential an element of our prognosis, as the kind of attack itself.

The first point on which he strongly insists, is that there is no uniformity between one epileptic fit and another: the symptoms are often very varied, and any practical man knows that the text-book descriptions are for the most part abstractions from many attacks—not faithful accounts of any one paroxysm. We can scarcely be too cautious in hesitating to pronounce any given attack to be a feigned one, merely because such and such symptoms do not resemble the pictures of the lecture-room. However characteristic certain features may be when present—such as the sudden cry, sudden pallor of the face, and its later cyanotic coloration, the tonic stretching which precedes the convulsions, the turning of the head or trunk to one or other side, the coma, and so forth—yet the absence of any one of these just as little invalidates the true epileptic character of the fit. Even some of the symptoms which at first make one believe the fit to be feigned, may be genuine. The disorder is essentially Protean.

In general terms, one may say that the sudden occurrence, and the automatic course of the whole phenomena, constitute the characteristic features of an epileptic seizure. It may indeed be possible (as Calmeil's story shows) to simulate epilepsy; but it is extremely difficult, and not easily carried through.

This varied character of true epilepsy is still more true of the less known because fugitive and slighter attacks of *le petit mal*. Various muscular movements accompany these slight attacks. If the slight movement be one of chewing or swallowing, the attack is slight. If the movements be more complex, and look like voluntary ones, the attack is more severe. Sudden micturition, or disturbance of the genital organs in these attacks of momentary and epileptic unconsciousness, is not uncommon, and often gives rise to accusations of indecency. Sometimes the patient continues what he was doing when attacked, like the violinist of whom Maudsley speaks. Other attacks resemble syncope, and essentially they are probably the same—but not for medico-legal purposes. Sometimes we may form our opinion as to the true nature of the so-called fainting fit, from the frequency of the attacks, from their duration, and from the occasions which induce them. It is to be noted that in the great majority of these cases consciousness is entirely lost, although it may be only for a moment. But there are cases, which in all other features bear the stamp of epilepsy, in which consciousness is never lost.

A study of numerous cases is especially necessary in a forensic point of view, because we are often asked to form an opinion, not on seizures seen by ourselves, but on the history of the case, and the reports of others—often of non-professional persons. If in the case of a prisoner we simply ask about 'fits,' we shall often come to a wrong conclusion. Sander strongly reprobates such questions as those of which Chorinsky speaks, in which a presiding judge asked a prison-warder if a criminal had had an *epileptic* fit. It was not possible for the man to do other than guess at his answer. When mental disease is well marked, and the epilepsy slight, the latter is of little forensic importance, except as impressing its mark on the cerebral disorder. When, however, the mental disturbance is less evident, the association of epilepsy may serve to confirm the mental unsoundness, and places equivocal symptoms in a better light. When the fits are very numerous, it is common to say that the epilepsy is the *cause* of the insanity. Of course both are symptoms of the common disease which underlies them; and are mutually equivalent. Yet, doubtless, the fits themselves are prejudicial. The school-dogma that epilepsy may, but need not necessarily, have mental unsoundness as its sequel, may be true to a certain extent, but the answer would probably take a different form if both the epilepsy and the mental disturbance were regarded as collateral symptoms of a brain lesion of serious nature. The psychical characters of epileptics are well known to be characterised by mental weakness which may range from perfect imbecility to those slighter degrees of impaired intellect, which can only be recognised by close and careful observation, and then perhaps with difficulty. The persons who give us difficulty, in a forensic point of view, are those whose mental weakness is but slight, who conform themselves in most things to the ordinary customs of society, and whose peculiarities are not obvious except to their intimates. But it may help us to

remember that, however slight the intellectual failure, epileptics nearly always exhibit abnormalities of feeling. Their irritability is proverbial, and it leads them to abnormal actions, and reprisals against real or fancied encroachments. Hot temper, rash anger, and, when it comes to action, brutal want of reflection, characterise epileptics under all circumstances of life, whether trifles or more weighty matters are at stake. Besides intense irritability, they often manifest a blunting of the finer feelings, which leads to an almost total disregard of the ordinary feelings of decency and propriety. Epileptics are not bound by the ties of relationship, friendship, and love, like other people. Most of them are egotistic to the last degree. In many of them, particularly females, there is, along with mental weakness, a peculiar childish, timid, and clinging demeanour, which may afterwards become erotic. This is deceptive to the uninitiated, and often conceals unreasoning hate. Epileptics can manage some occupations very well. But only the minority really succeed in life: the great majority suffer shipwreck, if not at school, in the factory or in the counting-house, etc. Epileptics are also prone to all sorts of crooked dealings and perverted activity, and display but little power of resistance against temptations of any kind.

Are any epileptics perfectly sane? History points to Cæsar, Mahomet, Napoleon, and other great men. But of these personages we know little as regards their true and inner life. History knows only a part of a man's personality. Let us come to modern times—to the experience of private practice, of prisons and public institutions—and it may be freely admitted that, when the epileptic seizures are far apart, intellect is usually but slightly affected, or seems wholly intact. It may fully satisfy both business claims and social requirements; the individuals may even attain a certain cleverness in their chosen walk. But closer acquaintance reveals to us the hidden sorrows of the family, the self-tormenting, hypochondriac ideas of the patient, his shifting unfounded opinions, his irritability and inability to deal loyally in any circumstances whatsoever, and similar mental characteristics, which stand in close relationship to this neurosis. If to this picture we add the history of previous epileptic seizures, and the probability of future ones, it is clear that we cannot look on the actions of such a man as we would on those of one perfectly sound. Whether such an one be really responsible for his actions or no, may be open to debate in a court of law; and, indeed, no general answer can be given, so much must depend upon the nature of the crime [*That*] and the individuality of the perpetrator, as well as upon his surroundings. Dr. Sander says that we are clearly justified in asserting that we ought to make great allowances for epileptics, especially in judging of their actions. He agrees with Von Krafft-Ebing that it would be wise and humane to make a careful medical examination of every epileptic who is accused of any crime, however venial it may be. Epileptics whose mental faculties are well developed, and who retain these and their position in society, in spite of their (not frequent) fits are, according to Sander, those whose surroundings are favourable, and have been so through infancy and childhood. Under opposite conditions, we find all defects of character and intellect intensified. The social surroundings explain most of the vagabondage, begging, and thieving of poor epileptics. Crimes of violence, and

outrages against decency, often originate in the same way. Masturbation, for example, is almost certainly a part of the disease (*i.e.* a consequence, rather than a cause) in many cases. Our gaols, workhouses, reformatories, almshouses, and all sorts of pauper institutions, contain an overwhelming number of epileptics. A careful attention to training and education (in the widest sense), and a recognition of the increased care needed by young epileptics, would vastly diminish crime of all kinds. [Here follow remarks on hallucinations and spectral and other illusions, of little novelty to the English reader.] The peculiar 'pauses,' or intervals of consciousness of epilepsy, lasting from a few minutes to a few hours, in which epileptics act as if they had no history, past or present, are of great interest and importance. In this peculiar state they act as if they had planned to do all they do, although, in reality, their actions are automatic. They often retain no consciousness of their acts—so that they cannot be brought to remember that they have done them; *e.g.* a man will buy a cap and pay for it, and then wonder why he has it in his hand. Stories of this kind may be multiplied *ad infinitum*. Cases of crime committed under such circumstances are more difficult to deal with. The doctor often sees the patient for the first time, after he has been rudely awakened from his unconsciousness by the very fact of his arrest for the crime. Under such circumstances, all the low cunning of the epileptic is now aroused, and self-interest will prompt both himself and his friends to deceive the doctor if possible. But Sander thinks a careful study of each case, and of his social surroundings, education, etc., will generally lead us in the right direction. He evidently feels more strongly than he states, that it is both cruel and unjust to punish an epileptic as we would a common criminal with full responsibility. It is the part of science, no less than of humanity, to enlighten justice. In a given case of crime, we may find in the criminal no positive sign of insanity in the ordinary sense of the word, but we may have a history of epileptic attacks, and he may present all the mental and social weaknesses, and worse, on which remarks were made above.

Sander discusses the case of the so-called 'morally insane,' in whom perhaps we have no definite history of epileptic seizures, and is evidently of opinion that, in the absence of definite motive, crimes of great atrocity and suddenness must often be attributed to masked or larval epilepsy. At the same time, he is fully alive to the fact that forensic medicine, or rather the law in consulting physic, asks for generally received opinions and admitted facts, and is very chary of admitting novel views, especially when they involve the question of the non-responsibility of criminals. His object, therefore, is rather to secure unanimity of opinion, and a careful study of the true facts of the disease, on the part of his medical brethren, than to pronounce authoritatively as a medico-legal expert. [Although Dr. Sander's paper contains little of absolute novelty, and is rather (unconsciously, perhaps) a reflex of the views of French psychological writers, particularly of Laurent and Delasiauve, it is yet so catholic in its views, and so judiciously as well as judiciously written, as to suggest that the publication of the article *in extenso* would probably be acceptable to those who are interested in psychology.

—*Rep.* W. BATHURST WOODMAN, M.D.

REICH ON THE PHYSIOLOGY OF THE SECRETION OF TEARS.*

Dr. Herzenstein (*Beiträge zur Physiologie und Therapie der Thränenorgane*, Berlin, 1868), Dr. Demtschenka (*Zur Physiologie der Thränensecretion und Thränenleitung*, Petersburg, 1871), and Dr. Wolferz, have demonstrated in a decisive manner that the secretion of tears is placed in dependence on the lacrymal nerve, and partly also on the subcutaneous malar nerve.

The two last mentioned physiologists also admit that sympathy exercises a certain influence over the production of tears. Demtschenka even affirms that the quantity of tears obtained by the irritation of the sympathetic nerve is always more considerable than the amount produced by the irritation of the lacrymal nerve. According to these writers, the fibres of secretion contained in the lacrymal labyrinth proceed from the trigeminal nerve; but as they have in their experiments neglected to direct the irritation to the peripheral extremity of the trigeminus divided in the interior of the cranium, Dr. Reich has thought it advisable to take up and modify these experiments. His method of proceeding and his results are as follows. When an animal which has undergone severe injury is experimented on, the opening of the bony case of the skull and ablation of the encephalon having brought on a considerable loss of blood, the irritation of the peripheral extremity of the trigeminus does not produce any increase in the secretion of tears.

This result may be attributed to the want of circulation in the lacrymal gland. In order to put himself beyond the reach of this source of error, Dr. Reich operates as follows. A cannula is introduced into the trachea, the right brachio-cephalic artery is tied, as well as the left vertebral artery, the cranium is opened and the brain removed; the left carotid being compressed during the whole time the operation lasts. Artificial respiration is afterwards kept up, the heart continues to beat, and circulation is effected through the gland.

Eleven experiments were made under these conditions, in ten of which there was no increase of secretion; once only the eye was slightly moistened. The irritation took effect every time on the peripheral extremity of the divided trigeminus exclusively. This evidently proves that the irritation of the peripheral extremity of the trigeminus in rabbits does not at all increase the secretion of tears.

It may be thought that the rabbit was not a very favourable subject for these experiments, since the direct irritation of the conjunctiva by tobacco, ammonia, &c., brings on but little reaction in these animals; but the case is different when another means is employed. By introducing into one of the nasal fossæ a piece of paper soaked in essential oil of mustard, a very abundant and profuse secretion from both alæ is induced.

It is easy to convince oneself that the hypersecretion of tears which arises from the side opposed to the one irritated is also quite due to a reflex action, and not to the direct action produced by the evaporated essential oil; for, on covering up the eye on that side, after having previously closed up the corresponding nostril, the same phenomenon always takes place. If experiments be made on rabbits after having

taken the precautions indicated, it can be proved that the excessive secretion of tears, so easily brought on by the irritation of the nasal mucous membrane by means of the essential oil of mustard, constantly occurs on both sides in a nearly equal manner, whether one only or both the trigemini be cut, or even if they be left intact.

This proves that the lacrymal nerve derives its physiological properties from nerve-fibres other than those of the fifth pair, a result which is by no means surprising, since the known secretory nerves of the animal economy, as well as the motor nerves, receive a centrifugal impulse. We must, therefore, seek elsewhere for the nerve-fibres conducting to the production of tears.

By dividing the great sympathetic at the neck and exciting the central extremity, Dr. Reich has established, like his predecessors, Demtschenka and Wolferz, an excessive secretion of tears. This result, however, has not been constant in all the experiments. If the superior cervical ganglion be removed, the excessive secretion persists; if the trigeminus of the same side be cut at the same time, it still persists.

These researches lead to the irresistible conclusion, that the centrifugal nerve-fibres which are employed in the innervation of the lacrymal gland are situated above the superior cervical ganglion, and perhaps in the medulla oblongata, where are situated the fibres of the origin of that sympathetic nerve which regulate the salivary secretion.

Irritation of other nerves, such as the fourth pair, which anastomose in the cranium with the trigeminus, has not given any result.

The functional relation existing between the production of tears and the contraction of certain muscles of the face in weeping, laughing, &c., has led the author of this memoir also to study the action of the facial nerve, and he has established the fact that after the section of this nerve the reflex secretion always remains the same.

FORENSIC OPHTHALMOLOGY.

ON INJURIES OF THE EYE IN THEIR MEDICO-LEGAL RELATIONS. BY PROFESSOR ARLT, OF VIENNA.*

(Continued from page 273.)

15. *Dislocation of the Crystalline Lens.* A lens entirely separated from its connections may for some time be only partially displaced, but sooner or later it undergoes a marked change of position, if this have not already taken place in the act of injury. There are also cases in which an incomplete dislocation becomes complete, under the influence of a fresh concussion of the eye.

The completely dislocated crystalline lens may retain its transparency for weeks, months, or years. It is found depressed into the vitreous body, or in the anterior chamber, or entangled in the pupillary opening of the iris.

In one case, after a blow on the left eye, I saw the lens pushed inwards and upwards, and pressed against the iris; the pupil was dilated nearly as much as by atropia, so that, with a meniscus, the fundus of the eye could be seen, though not distinctly. In this case, the dislocated lens was exceptionally immov-

* *Zur Physiologie der Thränensecretion.* By Dr. MICHAEL REICH, of St. Petersburg. (*Archiv für Ophthalmologie*, tome xix. 3e partie, p. 38.)

* *Wiener Medizinische Wochenschrift*, April 25 and May 2, 1874.

able; the globe felt hard. Fingers could only be counted at a distance of five feet; number 10 only of Jäger's test-type could be recognised, through a small opening in a dark plate. Further changes could not be found.

The lens may pass from one position into the other; it may lie alternately sometimes before, sometimes behind the iris. Beyond the impairment of vision, the disturbance may be very slight, though lasting for years; but amaurosis, obstinate inflammation of the uveal tract, and even suppurative destruction of the eye, may be produced. It has already been observed (in section 4) that, when there is a rent in the sclerotic, the lens (usually without its capsule) may pass under the conjunctiva, or may remain partially in the eye (in the neighbourhood of the laceration of the ciliary body).

16. A lens *lying in the anterior chamber* is easily recognised when transparent, by the pale yellow colour, and by the brightness of its edge. The crystalline lens does not completely fill the anterior chamber, although it presses the iris backwards. If the lens have become opaque, and have fallen into the anterior chamber at a late period—often many years—after the injury, it is generally reduced in size by fatty degeneration and by calcareous deposits on the inner surface of the capsule, has a chalk-white appearance, and is uneven, sometimes more globular, sometimes more placentaliform. It may be free and movable, or may be adherent to the cornea or to the iris.

If the lens be already opaque at the time of the injury, the patient will be sensible not only of disturbance of vision, but also of a white opacity in the pupil. The diagnosis in this case is not attended with any difficulty.

Prognosis.—A lens lying in the anterior chamber may in time become opaque and smaller, but is never absorbed. If it remain long lying at the bottom, resting against the cornea, this part of the cornea becomes gradually opaque; and this opacity is not lost even after removal of the lens. It has also been observed that the part of the cornea involved becomes destroyed by ulceration. Such lenses are often borne for many years without remarkable trouble; but in many cases they appear to give rise to persistent iridocyclitis, attended with more or less severe paroxysms of pain. There are next an increase of serous exudation in the space which the lens formerly occupied, inflammatory softening of the zone of the sclerotic corresponding to the ciliary process, and a pyriform change in the shape of the globe, while the thinned and distended sclerotic pushes the base of the cornea forwards, either in the half or all round. There may further be serous effusion in the vitreous body, increased tension of the whole bulb, and glaucoma (pressure-excitation of the optic nerve). There may be an advanced stage of calcification of the lens, without the posterior part of the eye being essentially affected. In the early period of my practice, I saw a musician so far relieved by the removal, by the flap-operation, of a nearly calcified lens, which had lain a number of years in the anterior chamber, that he could go about without a guide (he was blind in the other eye.) Cataract-glasses were of little use to him, probably in consequence of opacity of the cornea below its middle, where the cataractous lens had lain.

Treatment.—Prolapse of the crystalline lens (in its unopened capsule) indicates positively extraction from below by a curved incision. The operation

should not be delayed after any chemosis caused by the injury has passed off. The patient should be in bed in the half-sitting position, so that the lens may not sink backwards through the pupil. The operator can generally judge before commencing whether the knife should be carried before or behind the lens, or even through it. The best instrument is a slender Beer's knife. The wound should allow the lens to escape easily; if this do not take place when the incision is completed, the lens must be extracted by a Daviel's curette, or by a hook or forceps. Pressure on an eye thus affected may readily be followed by considerable injury of the vitreous body.

17. *Depression of the Crystalline Lens into the Vitreous Body* may readily be detected in some circumstances; but its recognition is difficult or even for some time impossible, when at the same time there is hæmophthalmus. If there be neither effusion of blood nor laceration nor paralysis of the iris, the iris lies somewhat deeper, at the same level throughout (in a manner approached only in myopia), and trembles violently when the vision is suddenly changed from one object to another; the pupil is small, and of a remarkably pure black. The crystalline lens, having a higher specific gravity than the vitreous body, is pushed backwards and forwards by every sudden movement of the eye. If there be no impediment on the part of the retina or in the transmission of light, the patient when lying on his back sees the crystalline lens by means of the shadow which it throws on the retina. If the head be inclined forward for some time, the lens may even resume its position behind the pupil. If the pupil be not too narrow, and the media be sufficiently transparent, the transparent lens may be easily recognised by the phenomena of reflection described in sections 13 and 14, the opaque lens by its size, form, and colour, by means of the ophthalmoscope.

Prognosis and Treatment.—If the eye have suffered no other injury, it may continue to discharge its functions for several years, though imperfectly. It may, however, probably from repeated irritation of the iris and ciliary body, pass into a state of chronic inflammation with serous exudation, and of glaucoma. The crystalline lens may pass half way into the anterior chamber, and become caught in the pupil, from which it must be removed at any cost, if it be desired to prevent the eye from being destroyed by violent inflammation. Prolapse into the anterior chamber is probably the best thing that can be desired, in order that extraction may be performed. Strong mydriasis, and gentle repeated taps on the eye while the pupil is directed downwards (the head being bent forward) may produce this condition; after which the pupil is again narrowed by the energetic use of Calabar bean. Extraction may then be attempted in the way described in section 16, but is here attended with more or less loss of vitreous humour. Discission in the vitreous body is, if not impossible, at least very difficult, and rarely less dangerous than extraction with loss of vitreous humour.

18. *Injury of the Retina by Contusion or Concussion of the Globe.*—Not only before, but also after the introduction of the ophthalmoscope into practice, it was usual, even in recent times, in cases of disturbance of vision after injury, where no changes could be detected by unaided vision or by the ophthalmoscope, to locate the lesion within the skull, to use the term *commotio retinae* in explanation of the partly

transient; partly permanent disturbance of vision, and to assume a minimum degree of disturbance of the elements of the retina or a paralysis of the vaso-motor nerves through concussion. Dr. Berlin (see section 1) pointed out the untenability of this supposition, and struck out the path of more exact observation.

We may, with more probability, assume that concussion of the retina has taken place, when the eye alone has been struck directly by a blunt instrument. This group is divided into two groups: those in which disturbance of vision, generally of a high degree and accompanied with impairment of excentric vision, is permanent, or, at least, of long duration, and those which show only a slight impairment, *i.e.* of central vision alone, which generally passes off in a few days. From repeated observation, I agree with the opinion of Geissler and Knapp, that amaurosis or a high degree of disturbance of vision after concussion of the eye very rarely occurs without changes which may be discovered by the ophthalmoscope.

As regards the explanation of the milder cases by assuming the thrusting of the elements of the tissues against each other, this is just as little tenable with regard to the retina as to the brain; and with regard to the hypothesis of paralysis of the vaso-motor powers, Berlin could not, after careful comparison of the injured with the sound eye (in man and in rabbits), discover any dilatation of the arteries or of the veins. From his observations and experiments, Berlin arrived at the conclusion, that in all cases where concussion of the eye is followed by slight disturbance of central vision or unequal impairment of excentric vision, and recovery follows in a short time, the case is merely one in which there has previously been irregular astigmatism. This assumption is partly strengthened by the constant resistance of the iris to atropia, partly by the anatomical changes found in experiments on rabbits, in the anterior part of the eye. 'If a more or less hard and blunt body had struck the eye without producing any appreciable injury of the tissues or of the external structures, we found, immediately after the injury, a moderate degree of impairment of acute central vision, or an unequal impairment of excentric vision. At the same time we found, without exception, much episcleral injection, and considerable resistance of the iris to the action of atropia. After about an hour, we saw in a certain part of the fundus of the eye a dark grey cloudy opacity, which in two cases increased by the confluence of smaller opacities and became more intense; in two cases, small hæmorrhages were observed in the neighbourhood. The opacity in four cases lay around the pupil and macula lutea, in two on the outer side of the fundus oculi, and in two cases two large distinct parts of the retina were obscured; in each of these two cases an opaque spot belonged to the anterior half of the retina, and the other to the posterior part of the globe. The opacity seemed to reach its height in a period of twenty-four to thirty-six hours; after two or three days, on an average, it could no longer be seen. It was found to have no influence on the degree of acuteness of vision, whether the opacity of the retina was found in the neighbourhood of the macula lutea or was situated excentrically, and that the disturbance of vision constantly diminished, while the opacity was still increasing or had reached the height of its development. The improvement of the acuteness of vision made

rapid progress in the first twenty-four hours, but afterwards went on more slowly. In the first hours after the injury, I have not seen perfect dilatation of the pupil, even after dropping in atropia six or eight times. This irritability of the sphincter of the iris diminishes rapidly, but, though in a moderate degree, it and the disturbance of vision continue beyond the ophthalmoscopic changes, and the restoration of sight appears to make progress as the irritability decreases. I could not ascertain that there were changes in the tension of the eye.'

In experiments on rabbits it was found, on examination with the ophthalmoscope, that, when the injury had fallen on the sclerotic, extensive opacity was found on the part of the retina corresponding with the part of the sclerotic that was struck, and also a similar opacity in a neighbouring part of the fundus oculi lying directly opposite the struck part. On anatomical examination, the important discovery was made, that the retinal opacity was only due to acute oedema, dependent on hæmorrhage between the choroid and sclerotic. 'If the blow struck the cornea, we found as a rule, besides the subchoroid hæmorrhage, limited hæmorrhages between the ciliary muscles and the anterior section of the choroid on the one hand, and the sclerotic on the other. Though not with absolute regularity, we frequently found also hæmorrhages between the pars ciliaris retinæ and the choroid, as well as limited effusions of blood in the posterior wall of the iris and in the canal of Schlenem. Thus, in our experiments, what we had to deal with was essentially rupture of the choroidal vessels.'

Subchoroid hæmorrhage, as such, may not cause disturbance of vision; and, from what has been said above, this may occur without retinal opacity. Berlin 'saw two cases of injuries of the eye by blunt articles, in which, although there was considerable disturbance of sight, no changes in the retina could be detected by the ophthalmoscope. Both cases, however, showed much injection about the cornea, and a high degree of resistance of the iris to the action of atropia; and in one there was severe iritis. . . . On the other hand, it is very probable that hæmorrhage in the immediate neighbourhood of the lens acts on the form, and in some cases also on the position of the lens, and, in conjunction with the spasmodic contraction of the sphincter iridis, produces irregular astigmatism. . . . The course and degree of the disturbance of vision agreed very well with the supposition that the changes in form and position of the lens were to be referred to the mechanical influence of small collections of blood.'

I have already stated in section 1 the reasons why I cannot agree with Berlin's opinion as to the production of rupture in the posterior circumference of the choroid. I will here only add, that rupture of the uvea in the anterior section of the globe may arise partly from contusion of the portion of the choroid lying directly beneath the affected part of sclerotic, partly from flattening of the cornea, and sudden widening of the corneo-scleral ring; while the sclero-uveal laceration removing concentrically to the edge of the cornea is to be considered a result of sudden distension of the globe in that circle, of which the laceration itself forms a portion.

(To be continued.)

CLINICAL MEDICINE.

ON VARICELLA. BY PROFESSOR HENOCK,
OF BERLIN.*

The motive for making the following communication has been afforded me by a little epidemic of varicella, which I had the opportunity of observing in the children's department in the Charité Hospital, in the summer of 1873. The first case occurred in a boy aged six and a half years, who was admitted on account of scrofula, on April 2, and on the 23rd—twenty-one days after his admission—was attacked with varicella. As there had been no case of this disease in my wards for several months, one was at first led to believe that infection had taken place before the child's admission, in which case the stage of incubation must have lasted at least three weeks. So long a duration of this stage, however, is in contradiction to nearly all observations; and I therefore preferred to assume the previous existence in the institution of an infection, the source of which was unknown. In the same inexplicable manner I have seen parotitis suddenly break out in the wards, and attack a number of children in rapid succession. Most probably, the contagion is brought from without on the visiting days.

From this child, a number of others were, by degrees, infected, partly in the same ward, partly in the adjoining ones. The combination of the exanthem with measles, which prevailed in the department at the same time, was interesting. Several authors—for instance, West—have commented on a special relation believed to exist between these two exanthematous diseases, in consequence of their rapid sequence in the same individual being observed with remarkable frequency. This circumstance was observed in our epidemic, inasmuch as five children were seized with varicella very soon after convalescence from measles. (I shall return to this subject.) I cannot accept this as evidence of a relationship between the two diseases, in favour of which West expresses himself; for the children with measles naturally lay for some time together in separate wards, and varicella breaking out in one of them would much more readily infect the adjoining patients than those in distant wards, and suffering from other diseases.

The interval between the two exanthemata was very long in one case only, viz. six and-a-half weeks. This child was taken ill with measles at the end of March, at a time, therefore, when varicella did not prevail in the institution. It had varicella on May 13. Three children (in five cases accurate observations were not made) came into the hospital on May 22, 23, and 28, with premonitory symptoms of measles, or with the eruption already developed, and were attacked with varicella on June 2, 3, and 17; thus at intervals of 11, 12, and 20 days. It cannot indeed be determined with certainty on what day infection actually took place under such circumstances—i.e. in a hospital atmosphere containing the contagium. As, however, observations in families show that the incubation-period of varicella is almost always fourteen days, both of the first two children must have been infected with the contagium of varicella during the prodromal stage of the

measles, or at least during the eruption and its efflorescence; this is an additional proof that the development of one acute exanthematous disease by no means excludes the possibility of infection by another. I take this opportunity of referring to a case of scarlatina observed in my private practice, in which, on the twelfth day after the eruption, an enormous outbreak of varicella took place over the whole body and even on the mucous membrane of the mouth. The infection must then in this case have taken place during the incubation-stage of the scarlet fever, while the boy was still attending school; as, from the time when the scarlatinal eruption appeared, he did not come into contact with any other child.

In one case only were appearances observed, which allowed the supposition of a simultaneous attack of the two diseases. A child, two years old, admitted in April with caries of the sacro-iliac articulation and whooping-cough, presented on May 13, with severe febrile symptoms, an abundant papular exanthem rapidly spreading over the body from above downwards, confluent in large spots in many places, and attended with catarrhal symptoms, which on the 18th, after the eruption had completely faded, went on to broncho-pneumonia. While this was going on, on the 16th, varicella appeared, and was fully developed on the 18th. With the simultaneous prevalence of both exanthemata in the institution at this time, and the very characteristic symptoms, I can scarcely doubt the simultaneous existence of measles and varicella in this case.

With regard to the phenomena of the disease, I observed in one case only, that of a boy five years old, a prodromal exanthema, in the form of a diffuse erythema preceding the eruption by several hours, and accompanying it on the first day. In a second case, the eruption was preceded for one day by conjunctivitis, and in a third by slight angina; affections which I regard rather as accidental than as connected with the varicella. Headache, vomiting, and increased heat, were showed in two cases shortly before the eruption appeared. I paid special attention to the temperature, as, in spite of many well established opposing observations, the opinion still prevails with many physicians, that chicken-pox is a disease free from fever, in which the children can be left to themselves without fear. Daily thermometrical observations in twelve cases showed that during the eruption, and even on the second day of the disease, there is a febrile state, which, however, is very mild in most cases. On the first and second days, the temperature varied between 100° and 101·8° Fahr.; being higher in the evening than in the morning. In two cases only it fell to 100° and 99·6° Fahr. on the morning of the second day, and again rose in the evening to 101·3° and 102·6° Fahr. The eruption generally came to an end on the second day; after-crops might appear without increase of temperature. In one case the temperature sank on the third morning to 100°, and in the evening, in spite of further eruption, to 98·6° Fahr. In general, the fever thus appeared to reach its end on the second day. I have never observed varicella to run its course absolutely free from fever; for no conclusion can be drawn from the observations made in private practice, in which, on account of the slightness of the malady, the thermometer was not used. In a boy aged three-and-a-half years, who first presented the eruption of varicella on May 13, the temperature was only 99·5°, and in the evening 99·6°

* A Paper read before the Medical Society of Berlin. (*Berliner Klinische Wochenschrift*, May 4, 1874.)

Fahr. As, however, the vesicles were already partially dried, I have no doubt that the eruption was already two or three days old, but that it had been overlooked on account of the absence of constitutional symptoms (the child was convalescent from measles).

In a comparatively small number of cases only did the fever attain a high degree and a long duration. In one child, the thermometer on the evening before the eruption showed a temperature of $101^{\circ}5'$, on the evening of the second day $102^{\circ}2'$, and on the third day 102° . In another case, where the diffuse erythema of the skin preceded and accompanied, the fever set in with a temperature of $104^{\circ}9'$; on the second evening, however, the temperature was only $100^{\circ}9'$, and on the third day the fever had completely disappeared. In one case only the fever was quite unusually high and of long duration. The patient was a boy aged six, in whom, during the efflorescence stage of measles, tracheotomy was performed with success on account of croup. Convalescence was nearly complete, and the wound was almost healed, when he was attacked with the varicella then prevalent in the hospital. The course of the fever was as follows.

| | Morning. | Evening. |
|---------------------------------------|------------------|-------------------------|
| Evening before the eruption | — | $101^{\circ}48^{\circ}$ |
| First day | $102^{\circ}2'$ | $104^{\circ}45'$ |
| Second day | $101^{\circ}48'$ | $104^{\circ}9'$ |
| Third day | $102^{\circ}9'$ | $105^{\circ}8'$ |
| Fourth day | $102^{\circ}2'$ | $102^{\circ}75'$ |

On the fifth day, he was free from fever. Thus in this case, after a premonitory stage, the fever lasted four days, indicating degrees of temperature which are otherwise only present in highly developed infectious diseases, in fibrinous pneumonia, &c. I believe that two facts will aid us in explaining this unusual circumstance.

1. This boy was specially predisposed to high fever. When, some weeks later, he had an unimportant rash, caused by indigestion, he had for three days an evening temperature of 104° Fahr. and more.

2. The remarkable extent of the eruption of varicella might have an influence on the height of the fever. The abnormal increases of temperature in this disease are, as I have convinced myself by many observations in private practice, always connected with a widely spread and thick eruption, the vesicles of which in great part undergo a purulent change on the second or third day. It is these cases which keep up the still unsettled contest as to the identity or non-identity of varicella and variola. Let one only read the article by Kassowitz in the *Fahrbuch für Kinderheilkunde*, 1873, and the reports of the recent discussions in Vienna on this subject (*ibid.*), and one will be astonished at what I may almost call the juristic sophistry, with which the advocates of the unity doctrine have contended for their views. In my opinion, every unprejudiced observer must range himself on the side of the dualists. It is not singularities that settle the matter here, not the circumstance that individual vesicles of varicella have a central depression, and that their contents may become purulent. Taken altogether, the differences are always so marked, that, to me, a perfect separation of varicella from the variola group seems indispensable. Our little epidemic completely supported this opinion. We had here before us in the same hospital a whole series of cases, which manifestly arose from mutual infection. I ask the unionists, why did the disease always begin with clear vesicles

proceeding from a red spot? Why did all the cases, with the exception of one distinguished by a fever lasting four days, and a very diffuse and partly purulent eruption, show the well known characters of varicella? And does not this one case correspond completely with those irregularities which we observe in other acute exanthemata? Take, for instance, the exceptions of scarlatina, which in almost all cases commences as a diffuse erythema, but, under very severe cutaneous inflammation, is often enough mixed with papules or with vesicles, which may even have puriform contents. In spite of this, the disease is still scarlet fever. Just in the same way I regard these exceptional cases of chicken-pox. Two cases came under my care in private practice, in circumstances which to me were decisive. Two sisters, both vaccinated, were ill with varicella at the same time; one had the disease in as severe a form as in the boy whose case I have related above, having strong fever, with severe headache, and the body thickly covered with vesicles, some of which underwent purulent change; the other had no constitutional symptoms of importance, and only a very few clear watery vesicles. In another family, a child three years old, who had been successfully vaccinated, was so severely ill that I should have been misled, had I not seen the eruption of clear vesicles. In a fortnight, the elder brother had a very mild attack of vesicular chicken-pox. The extension of the disease among the grown members of the family, or of the household, such as often occurs in variola, was not observed in one of these cases; nor was a single member of the staff of attendants attacked during the epidemic in the Charité.

With this agrees the circumstance which I have often observed, of varicella attacking the mucous membrane of the mouth and inner surface of the lips. I saw here the same clear vesicles as on the skin, but always very scanty; nor have I seen the white conical elevations, as in the stage of the outbreak of variola. Now and then, single rather opaque vesicles, with surrounding congestion, on the conjunctiva of the eye, came under my notice. After-crops of the eruption, appearing in very irregular succession, are rather usual; so that not unfrequently the back and the lower limbs are first affected, and then the face for the first time on the third day; or fresh clear vesicles appear among those which have already dried. I cannot agree with the opinion of Thomas (*Archiv für Dermatologie*, 1869) when he contradicts the occurrence of such after-crops. Through scratching by the children, ecchymatous pustules, circumscribed erythema, and small ulcerations are often produced, and obscure the eruption. The disposition of parts of the skin that are irritated or pressed on to acute exanthemata, specially observed by Hebra, is met with also in varicella. Thus, in a child which lay constantly on its left side, the eruption was here much more marked than on the right side; in a boy with a congestive abscess as large as a child's head in the flexure of the left hip-joint, the distended skin over the abscess was the seat of a thick eruption, which appeared only sparsely over the rest of the body. Chronic skin-diseases have little influence on the eruption. Some years ago I saw two children with congenital ichthyosis, in whom varicella was regularly developed. Finally, I would call attention to a Moorish boy in the hospital, whose dark brown skin, after the eruption of varicella, appeared as if scattered over with transparent pearls.

ANATOMY AND PHYSIOLOGY.

FOSTER ON THE IMPORTANCE OF SALTS IN FOOD.—Foster (*Zeitschrift für Biologie*, vol. ix. p. 297) has made some interesting experiments on dogs and pigeons, which show that animals die when inorganic salts are altogether absent from their food, although the other nutritive constituents may be abundant. In all animals, a condition of muscular weakness and tremor occurred, which is best designated by the term general exhaustion. The weakness of individual groups of muscles in the dog, and especially those of the posterior extremities, from the second week of the experiment onwards, gradually assumed a paralytic character, such as is observed when the function of the spinal chord is weakened. The activity of the cerebrum was also impaired, as was evident from the increasing bluntness of the senses and the apathy of the animal. Later on, symptoms of increased excitability often appeared. Thus, when the author quickly entered the room where one of the pigeons had ventured upon the cross bar of the cage, it fell suddenly upon the floor of the cage, and there remained crouched in the ordinary stupid position with its eyes closed and its head drawn in. Dogs always cowered at once, as if terrified, whenever any quick motion was made towards them even from a distance. On one occasion, one of them had an attack of madness, springing at the keeper and barking, but crouching down, trembling and growling, when it heard his voice. On being taken out it ran straight forward, and knocked its head violently against a wall in its way. There was tonic contraction of the muscles of the jaw and neck. After the animal has been deprived of salts for some time, the juices of the intestinal canal either lose their digestive power or are not secreted in proper quantity, and nutrition is thus interfered with. Death takes place, however, from the alterations in the nervous system, before there has been time for it to occur from inanition. The quantity of salts necessary to life is smaller than is generally supposed, but the exact amount required is still to be determined.

T. LAUDER BRUNTON, M.D.

GIERKE AND P. ROKITANSKY ON THE RESPIRATORY CENTRE.—Gierke (Pflüger's *Archiv*, vol. viii. p. 583-600) locates the respiratory centre in a longitudinal bundle of fine nerve-fibres, lying on each side of the middle line in the medulla oblongata. It has previously been described as belonging to the origin of the vagus and glossopharyngeal nerves. It is a continuation of bundles, which, higher up in the medulla, pass out transversely from the nuclei of the vagus and hypoglossal nerves, then proceed longitudinally downwards, and lose themselves in the reticular nervous tissue between the anterior and posterior horns. This respiratory centre does not consist of a distinct group of cells. The author regards respiration as a reflex act, the afferent nerves being the trigeminus and vagus, and the efferent nerves the phrenic, intercostal, and other nerves.

Prokop Rokitansky (Stricker's *Medicinische Jahrbücher*, 1874, p. 30-41) considers that the respiratory centre is not confined to the medulla, but extends to the cord; for he finds that respiratory movements occur in rabbits poisoned by strychnia, although the medulla has been separated from the spinal cord. Rabbits die from imperfect respiration when the medulla oblongata is cut through at the

posterior border of the pons Varolii. When respiration has been arrested by dividing the medulla at this point, it begins again if strychnia be injected. [The action of strychnia in exciting the spinal portion of the respiratory centre is similar to its action on the vasomotor centre as described by Schlesinger; *vide* LONDON MEDICAL RECORD, vol. ii. p. 36.—*Rep.*] T. LAUDER BRUNTON, M.D.

JUVENTIN ON UREA IN VOMIT.—Dr. Juventin (thesis quoted in *Gazette Médicale de Paris*, April 25) informs us of the interesting fact that all vomited matter contains a certain proportion of urea. In fact, according to M. Juventin, 'the excretion of urea by the mucous membrane of the stomach is normal, and goes on in an amount proportionate to that contained in the aqueous portion of the blood.' The blood in the normal state contains 0.16 centigrammes of urea to the litre, according to Picard's analyses.

The quantities of urea contained in the vomited matters have been determined by the process of M. Bouchard.

FOUILLOUX ON VARIATIONS IN UREA.—An essay by Dr. Fouilloux on the variations of urea, contains besides some original researches made by himself, the sum of our knowledge concerning the quantitative modifications of urea daily excreted by the urine. The author describes the old and new methods for determining the amount of the urea, the latter being, as we know, founded on the employment either of hypobromite of soda, as practised by Yorn, Esbach, Regnard, and Hufner; or of Millon's re-agent, as practised by Gréhaut, Bouchard, and Quinquaud. The second chapter of the work is devoted to the physiological variations of urea; the third to the variations due to therapeutic influences.

The action of oxygen, of the chlorides, of diuretics, baths, coffee, digitalis, alcohol, &c., is successively passed in review. Finally, in the fourth chapter, which is the most fully developed of the series and contains the results of Dr. Fouilloux's own researches, he examined the pathological variations of urea.

The author's analyses relating to hepatic affections are specially worthy of consideration.

RIEGEL ON THE INFLUENCE OF ALCOHOL ON THE TEMPERATURE OF THE HUMAN BODY.—We are indebted to the *Berliner Klinische Wochenschrift* for the following abstract of the original paper in the *Deutsches Archiv für Klinische Medizin*, vol. xii. parts 1 and 2.

The ordinary sources of fallacy in experiments on the action of alcohol were, as far as possible, guarded against by Riegel, as follows. 1. Not content with prefixing one typical or theoretical curve of normal temperatures to the whole set of experiments, he constructed and prefixed to each experiment a normal temperature curve of the subject of such experiment, drawn from actual observation of each individual. 2. The measurements of temperature were simultaneously made in the axilla and in the rectum; it could not, therefore, be objected that the slight depressions were due to the thermometer shifting in the axilla, &c.

On the whole, his experiments confirm those of Binz and Bouvier [we may also add, of Dr. Parkes, Dogiel, Sydney Ringer, and the Reporter]. The general results of the experiments are the following.

1. Alcohol depresses the temperature, not only in febrile diseases, such as typhus, erysipelas, and

pneumonia, but in a febrile condition also; this depression generally amounts to only a few tenths of a degree (centigrade), and lasts for a short time only. Very rarely there is an equally great rise of temperature.

2. In those recovering from severe illness, the downfall is somewhat less, or, more often, altogether absent. This is also the case in those habituated to alcohol.

3. The larger the dose, the greater the downfall of temperature.

4. Riegel concludes that, although alcohol scarcely deserves the reputation given to it in England, as a decided depressor of temperature, yet, on the other hand, it never essentially raises the temperature—the constant dread of continental practitioners—and it is decidedly one of those things which diminish bodily waste, like tea and coffee.

W. BATHURST WOODMAN, M.D.

DUJARDIN ON MEDICAL THERMOGRAPHY.—Dr. Dujardin has published (*Gazette Médicale de Paris*, April 20) a description of a thermograph of his own invention, consisting of, 1. A thermo-electric pile; 2. A self-registering galvanometer. The metallic elements are formed of iron and German silver; one of the points of union of which is maintained at a constant temperature, by a very ingenious arrangement. The needle of the galvanometer terminates in a delicate prolongation made of aluminium, very carefully balanced, the indicating extremity of which moves above a thin plate of glass. A layer of opaque varnish, laid on the surface of the glass, covers it entirely, with the exception of a band about a millimètre wide, which represents the chord of the arc described by the movement of the needle from one end of its chord to the other; a line which corresponds to about thirty degrees on each side of the zero of the galvanometer. On this transparent portion a photographic paper is unrolled, and is drawn with a slow and continuous movement by watchwork, in the direction of the length of the needle. Its luminous rays, starting from a lamp, and reflected by a mirror placed at a proper inclination, strike the photographic paper vertically, and produce an impression on it, except at the place where the needle projects its shadow. Thus, a continuous straight or sinuous line is obtained, according to the fixity or mobility of the needle.

Within the limits of the physiological temperatures, the intensity of the currents are in proportion to the differences in temperature of the two points of union. But, the deviations of the magnetic needle not being proportionate to the intensity of the currents, the galvanometer must be graduated. To do this, the intensity of the deviations of the needle is noted, whilst the two points of union are maintained at temperatures of which the depressions are known. The author believes, that the application of his thermograph is very easy, and that, by its assistance, the variations of any part of the body can be determined with precision, during a long space of time.

BURNETT ON THE RESONANT FUNCTIONS OF THE EXTERNAL EAR.—Dr. Charles H. Burnett, in an article in the *Philadelphia Medical Times* for April 4, gives it as his opinion, that the auricle, in combination with the meatus auditorius externus, forms a resonator of a more or less conical shape, closed at the bottom by the membrana tympani, the special function of which is to strengthen by reson-

ance those waves of sound which possess a short wave-length, and which are the notes in which the human voice is most rich, and to which it owes its special timbre. Agreeing with Tyndall that the column of air which most easily resounds to any given note is equal to one-fourth of the length of the wave or sound produced by that note, he holds, that the meatus is adapted by its length to act as a resonator for notes from E^{iv} to G^{iv}, which, having from 2,640 to 3,168 vibrations in the second, will have, at 60° Fahr. a wave-length of four and a half inches; when the pitch of the note falls, and accordingly the wave-length increases. Dr. Burnett believes, that, as the meatus auditorius externus is not long enough to act as the resonator, 'the concha is superposed by nature upon the external auditory meatus in order to lengthen it.' He says he has shown this by experiments, made last summer by himself and Dr. A. H. Buck, but he does not in this paper give the methods employed.

W. LAIDLAW PURVES, M.D.

PATHOLOGY.

BERNHARDT ON THE PRODUCTION OF DIABETES IN BIRDS.—The experiments of Bernard upon this subject are by no means very definite in their results. He remarks that puncture of the medulla in birds does not appear to produce the same effects as in mammals, but that this operation is however followed by a singular phenomenon, viz., arrest of digestion (in pigeons). M. Bernhardt (Virchow's *Archiv*, vol. lix. p. 407) has made similar experiments. The pigeons when operated on exhibited the ordinary phenomena, rotation of the head, *mouvements de mande*, etc. When the animals survived the fifth day, they partly regained their appetite and walked somewhat better. In the evacuated excrements, Trommer's test detected sugar plentifully. The pigeons were fed with barley. Further experiments showed, however, that sugar was a normal constituent of the excrements of pigeons fed with barley or peas. The animals were therefore fed with flesh, but in no case in the animals not operated on was sugar found in the excrements. If the pigeons, however, had been fed on flesh, and the medulla were then punctured, the excrements evacuated invariably contained sugar. The animals so operated on exhibited serious disturbance of the nervous system. Often the spasms which occurred after the puncture lasted till the death of the animal (twenty-four to thirty-six hours generally). Often the animals recovered, after they had on the first day fallen to one side or the other in their attempts at walking. After a time they were, with the exception of slight oscillations in walking, quite like sound animals. With one exception, the animals operated upon did not eat of their own accord, but had to be fed artificially. *Post mortem* examination showed either a small or an extended hæmorrhage between the cerebellum and the medulla oblongata, whilst the other organs, beyond the emptiness of the stomach, exhibited nothing in particular. The author also experimented with amyl nitrite to investigate whether this substance produces diabetes in pigeons (as A. Hoffmann has shown to be the case with rabbits) but the results of his experiments were as often negative as positive.

WM. STIRLING, D.Sc., M.B.

BOCK ON SUGAR IN ŒDEMATOUS FLUIDS.—C. Bock (*Reichert und Du Bois-Reymond's Archiv*, 1873, part v.) says that it is well known that a substance capable of reducing oxide of copper has been tolerably constantly found in the cerebro-spinal fluid, and in the fluid of echinococcus sacs. This substance was regarded by M. Bernard as sugar. With special reference to this substance, the author has experimented on œdematous fluids. In cases of anasarca, a lancet-shaped cannula was introduced through the skin, and clear drops of fluid, quite uncontaminated and free from blood, could be caught in a vessel placed for the purpose. In favourable cases, 1,000 cubic centimètres could be obtained daily. In the different diseases which caused the œdema, the fluids differed a little from each other in their physical properties. The fluid was clear, like water, and only seldom was a yellowish or greenish tinge observed, chiefly when icterus was present. Spontaneous coagulation from fibrin did not occur in any case, even after long-standing, or by the addition of defibrinated blood. The reaction was always more or less alkaline; the specific gravity from 1005 to 1010, and this independently of the cause of origin of the œdema. Uræa was constantly found in small quantities (·1 to ·2 per cent.). To test for sugar the albumen must, of course, be removed. The albumen varied in quantity from ·06 to ·9 per cent. In most cases it was ·1 to ·2 per cent. The author employed the various tests for sugar in the most careful manner, and arrived at the conclusion that the substance was really sugar. Quantitative estimations were made with Fehling's solution. In a case of chronic nephritis with pronounced dropsical symptoms, the clear fluid had a specific gravity of 1009, contained only traces of albumen, and ·04 per cent. of sugar; in another similar case ·048 per cent. was obtained. A patient with heart-disease showed ·077 per cent. sugar in his œdematous fluid. Often no sugar was found, but this became more rare the more expert the author became in the investigation. The investigation must always be made on fresh fluid. The author has also found sugar in pleuritic effusions. These results have been compiled by Professor F. A. Hoffmann, from the papers left by Dr. C. Bock at his death.

WILLIAM STIRLING, D.Sc., M.B.

AUDIGÉ ON SPASM OF THE BILIARY PASSAGES. Dr. Audigé's new work on 'Experimental Researches on Spasm of the Biliary Passages,' is based on a certain number of experiments made on dogs. The intention of these experiments was to study the action of mechanical, galvanic, and chemical excitants; and to attempt to reproduce the effects of calculi on the biliary canals, by introducing foreign bodies into them. It was likewise desired to search in the urine for the presence of the colouring matters of the bile during the hours which immediately follow the artificially produced obstruction of the biliary ducts. The last experiments, which are very interesting, have shown that the biliary pigment appears in the urine much before the icteric colouring of the integument, about two or three hours after the ligation of the biliary duct.

PERL ON THE INFLUENCE OF ANÆMIA ON THE NUTRITION OF THE MUSCULAR FIBRES OF THE HEART.—The fatty degeneration of the internal membrane of the vessels, the degeneration of the muscular fibres of the heart, and the arrest of the development of the whole vascular system, are the

three principal organic changes which have been recognised in chlorosis. Already partly pointed out in the collected edition of Virchow's works (*Gesammelte Abhandlungen*, p. 494) these facts are more fully developed in a special memoir on chlorosis by the same author. Since that time, many observers have also recognised the change of the cardiac muscular fibres in a great number of forms of anæmia; for instance, in lying-in-women who had died in consequence of profuse hæmorrhage, and in persons who had died from marasmus after typhoid fever, or from affections of the digestive tube which had brought on serious troubles of absorption or nutrition.

Tschudnowsky, a Russian physiologist, has recently published a memoir, in which he has directly studied the influence of bleeding on the nutrition of the heart; and in which he entirely confirms the results obtained by clinical experience.

Dr. Perl, of Berlin (*Virchow's Archiv*, vol. lviii.), while taking note of these researches, wished likewise to assure himself of the effects of anæmia on the heart, and instituted a series of experiments on dogs, which were superintended by Virchow. He selected veins of a certain size, which were carefully isolated, then tied on the cardiac side. A thread was slipped under the vessel on the peripheral side, then the vein was opened; the desired quantity of blood was allowed to flow, and the operation was finished by tying the peripheric end. Arterial blood was not abstracted, except when the veins, having already been opened several times, had become the seat of thromboses, and consequently more or less impermeable.

Two different methods were adopted. In a first series of experiments, moderate but rather frequent, blood-lettings were performed; that is to say, they were repeated every three or four days, but the quantity of blood never exceeded the hundredth part of the total weight of the animal. In a second series, the blood-lettings were few and far between, but copious. Every five or seven days a quantity of blood corresponding to three hundredths of the entire weight of the animal was taken away.

In the dogs of the first series of experiments, the effects of the blood-letting were very slightly apparent, and recovery was rapid; the appetite was good, the reparation of the blood lost went on smoothly, though the number of bleedings spread over from thirty-six to sixty-nine days had amounted to from ten to seventeen. The animals were killed, and the necropsy revealed a perfectly normal condition of the muscular fibre of the heart; the striation remained perfect; there were no fatty elements except in the neighbourhood of the nuclei, which is an ordinary phenomenon with dogs.

On the other hand, the animals which had been submitted to unfrequent, though copious, blood-lettings (from five to eleven in an interval of from four to twelve weeks) were in a very different condition. They speedily fell into a state of marasmus, rapidly became emaciated, lost their appetite, and their lower extremities became œdematised; all, with one exception, succumbed spontaneously. One dog only did not present any anomalous appearances at the necropsy; in all the others the heart was flaccid, and of a pale and slightly yellowish tint. Fatty degeneration of the muscular fibres could be found in all parts of the organ; sometimes the striation was only interrupted by fatty corpuscles; sometimes it was no longer even perceptible, and only refracting granules, which resisted

the action of acids and alkalis, were to be perceived. The degeneration was not universally distributed in the same degree; it was more decided in the papillary muscles of the left side of the heart, next in the corresponding fasciculi of the right side, next in order came the walls of the left side, and finally those of the right side. The process never showed itself in manifestations which were visible to the naked eye; and with the microscope, by the side of the degenerated fibres, others could be discerned which had remained intact. As the dogs were not suffering from any other disease, and as no clearly defined fibrile movement could be discovered in them, from a clinical point of view, anæmia only could be designated as the cause of the lesions.

From a clinical point of view, these facts are of great importance, since they explain the more or less serious cardiac symptoms which show themselves in inveterate chlorosis. Chlorosis will be removed from the domain of purely humoral pathology to re-enter, up to a certain point, that of organic pathology.

MATERIA MEDICA AND THERAPEUTICS.

HULL ON THE THERAPEUTIC ACTION OF GELSEMINUM.—Dr. W. C. Hull, of Monroeton, Pennsylvania, writes (*Philadelphia Medical Reporter*): When we proceed to investigate the therapeutic powers of a new agent, there are two general heads under which our studies should be conducted.

1. Prove its effects on a healthy organism.
2. After having determined its physiological action, proceed upon general principles to elicit its remedial powers. A knowledge of drug action on the healthy organism enables us to form some idea of its adaptability to morbid states; but it may still have occult curative powers, which can be discovered only by empirical tests. The action of the sulphate of quinia in health affords no indication of its specific power over ague; but the sleep and insensibility produced by opium present sufficient evidence of its ability to relieve insomnia and pain. There are numerous sources of error, which are apt to mislead us in the study of practical medicine. The 'vis medicatrix nature' must not be lost sight of by the attentive and candid investigator. Perhaps there is no mistake more frequently made by physicians, than the one of attributing cures to remedial action which are really due to natural effort. In the larger proportion of cases we are called to treat, the natural tendency is to health, for within certain limits the human organism embraces within itself the elements of recuperation.

The question arises, how can we, in a given case of recovery under treatment, determine the relative amounts of recuperative and of remedial power? The fact is, we can never isolate the two forces; recuperative power is the germ of all cures; hygiene and medicine do no more than to develop this conservative principle of life into more potent energy. In some cases of disease, life would undoubtedly be sacrificed without appropriate treatment, but instances of this kind are far less numerous than was formerly supposed. The expectant plan of treatment, which has been thoroughly tested during the last few years, has established the fact that the sick recover without treatment in a large proportion of curable diseases.

The actual curative power of medicinal agents can only be determined by their repeated use in the same disease, and then comparing the general result with the expectant plan of treatment in a like number of cases. So far as attainable, this comparative method gives us the absolute value of remedies, which is the very thing we ought to know, in order to avoid drugging our patients to no purpose, or to their irreparable injury.

It has been frequently demonstrated by the absolute test, that some popular modes of treatment prolong instead of cutting short the progress of disease; hence, I insist upon the importance of comparing medicinal with expectant treatment. Relative medicinal tests are valuable, when it has been proved that the agents compared do not prolong but abridge disease. I have introduced these preliminary observations, in order to stimulate investigators to prove, so far as possible, the absolute powers of medicinal agents.

Gelseminum Sempervirens, yellow jasmine, was used throughout the Southern States as a vermifuge, in domestic treatment, long before its special affinity for certain forms of fever was discovered. Its first use in the treatment of fever was the result of a mistake made by the servant of a Mississippi planter, for a full account of which see *U. S. Dispensatory*, page 421. According to my observation, the most obvious effects of gelseminum on the human organism are, vertigo, slight delirium, pupillary dilatation, amblyopia, diplopia, congestion, general prostration, muscular relaxation and diaphoresis. The four conditions of the ocular organs, congestion, amblyopia, diplopia, and pupillary dilatation, indicate a diminution of nervous force, which results in partial paralysis. It is my opinion that, in order of sequence, the congestion (a result of vasomotor enervation) occurs first, and the three other conditions supervene in consequence of obstructed capillary circulation. There is not evidence sufficient to prove that gelseminum acts directly on the cerebral ganglia. Physiology has established the fact that the circulation of the blood through the capillary vessels is effected to a considerable extent by the natural tonicity of their coats. This tonicity of the capillary coats is dependent upon the vasomotor fibres of the great sympathetic; so whatever impairs the function of this nerve must produce capillary congestion. Gelseminum acts directly on the great sympathetic, diminishing the amount of nervous force transmitted through the vasomotor system of nerves to the capillary vessels, impairing their tonicity and producing congestion.

The secondary effects are such as we might expect from an interrupted circulation, viz., general prostration, muscular relaxation with debility, and a feeble, slower action of the heart. It is asserted by some writers that gelseminum is an arterial sedative, but this is an obvious error. Veratrum viride is a good example of a true arterial sedative; it acts directly on the heart, diminishing the frequency and force of its action. Gelseminum acts directly on the capillary vessels, impairing their tonicity, and obstructing the flow of blood through them. Veratrum viride acts upon the central, while gelseminum acts upon the peripheral portion of the vascular circle.

Although both agents, in a different order, restrain the action of the heart, their range of application to the treatment of disease is widely different. Veratrum is adapted to the treatment of congestive and inflammatory diseases, for, by directly restraining the

heart's action, less blood is forced into the weakened and distended capillaries, and resolution is facilitated. Gelseminum is not indicated in the treatment of those conditions, as it indirectly restrains the heart's action by first producing general capillary congestion, a morbid state which always aggravates existing local lesions. Its use in congestive diseases would be similar to the act of throwing benzine into a fire, with the expectation of putting it out. The peculiar action of gelseminum on the nervous system affords no indication of its specific curative powers in certain fevers. Its occult virtues were first discovered by accident, and subsequently more fully developed by empirical tests. Since my location in Monroeton, less than three years ago, I and my late partner, Dr. D. N. Newton, have used gelseminum in at least one thousand cases of the diseases incident to this section. The general conclusion we have reached regarding it may be thus epitomized.

1. It is not adapted to the treatment of inflammatory and congestive diseases.

2. It inflicts positive injury in active congestion.

3. Its therapeutic scope does not extend much beyond certain simple forms of fever.

4. In order to obtain its specific action in fever, it must be rapidly introduced into the system, until its characteristic effects are produced upon the organ of vision.

5. It can be given in full doses, with entire safety, in those cases to which it is adapted.

I will not attempt to enumerate the various forms of disease in which gelseminum has either failed to evince any curative action, or has proved to be inferior to other remedies, but content myself with naming the affections which, in my hands at least, it has certainly benefited. In bilious, catarrhal, and the gastric fevers of childhood, it is nearly a specific. In typho-malarial fever, when there is a marked predominance of the malarial character, it often aborts it. I usually give five drops of the fluid extract every two hours, according to the effect. Usually at some period within twenty hours, the patient begins to complain of vertigo, double vision, impaired sight, muscular weakness and languor; a little later, a copious sweat comes on, and the fever, if simple and free from local lesions, is broken, and returns no more.

BURDEL ON EUCALYPTUS AND ITS FEBRIFUGE QUALITIES.—Dr. E. Burdel, Physician to the hospital at Virgon, records in the *Revue des Sciences Médicales*, April, 1874, the results of his observations on the action of eucalyptus in the Sologne. The results of Dr. Burdel's first cases were recorded in the *Bulletin Générale de Thérapeutique*, vol. lxxxiv. p. 409.

In the second note, now under consideration, upwards of thirty-three cases are reported, in which eucalyptus was successful in eighteen instances. M. Burdel believes that he can now, after two years' experience, by bringing together the facts which have occurred under his observation, arrive at the following conclusions with regard to the employment of eucalyptus.

The action of this remedy, which may certainly be considered a febrifuge, is slow and far from being always constant. In mild intermittent fever, eucalyptus is successful in four-fifths of the cases; in tertian, in three-fifths only; and, finally, in quartan fevers, it almost entirely fails: that is to say, in eight-tenths of the cases. In the seasons when intermittent fever

is most frequent—that is to say endemic—relapses are much more common when eucalyptus is used, than when recourse is had to quinine. Relapses may, however, be avoided by administering eucalyptus more frequently after some days rest only, and in as large doses as the stomach will tolerate. This remedy is perfectly inert in palustral cachexia. Finally, M. Burdel believes that in the second year of his experiments he obtained a rather larger proportion of cures and a smaller number of relapses, because he gave the eucalyptus in conjunction with good wines, iron, and quinine, and kept the organism up to its work by frequently repeated doses. Dr. Burdel administered the alcoholic extract of eucalyptus in pills, each containing 15 centigrammes, to the number of from four to ten daily, according to the form of the fever, given twice during the day.

ANDREWS ON COD-LIVER OIL EMULSION.—Dr. Beard writes (*Boston Medical Journal*, April 9): 'The prescription of a cod-liver oil emulsion was originally given by Dr. J. B. Andrews, of the Utica Insane Asylum. I have modified this prescription in various ways, and have experimented with it quite largely, and have recommended it to many of my professional friends. It takes a long time to make it, and the majority of druggists will slight it unless they are assured it will be ordered in large quantities. The latest modification that I employ is the following. If desired, Fowler's solution may be added to it. One of my patients, a physician, has added strychnine to it.

| | |
|--------------------------------|----------|
| R.—Glyconin | 3ix. |
| Ol. morrhue | 3iv. |
| Spts. ammon. arom. | 3i. |
| Vini xerici | 3ij. |
| Acid. phos. dil | 3ss. |
| Ol. amygdal. amar. | gtt. ij. |
| dissolved in alcohol | 3ij. M. |

'Put the glyconin first in the mortar, then add the oil by drops, stirring briskly all the time. When this process is completed, you will have a mass looking like, and having the consistency of, soft butter. Then add the other ingredients in the order mentioned; add them slowly, stirring all the time. The glyconin is made by beating yolks of eggs with a spatula until they are well broken, then add an equal measure of glycerine. It requires one or two hours to make it.

'The above preparation, when properly prepared, robs cod-liver oil of its terrors. The taste of the oil is pretty nearly destroyed, and no one, however fastidious, objects to it. When properly prepared, it will keep for months, if not years. Mr. Close, a pharmacist of Brooklyn, who introduced the glyconin modification in the emulsion, lets the oil drop out of a small bottle through a glass tube, and thus avoids the danger of pouring it in too fast. This emulsion, when made according to the above directions, with sufficient care, time and labour, is without question the best emulsion of the kind now before the profession. The original prescription, of which the above is a modification, is, or was, used in the Utica Insane Asylum in large quantities, and with satisfactory results. One druggist, to whom I gave the prescription, makes several gallons at a time and keeps it always on hand. Consumptives, who must take cod-liver oil, and yet cannot bear it, find this emulsion agreeable, and, as far as I can learn, as useful as the oil when taken alone.

'My own experience with the emulsion has been confined mostly to its use in hysteria, neurasthenia, and allied affections, and I know no single prescription that does so much good and so little harm in all these aneuric disturbances. I earnestly recommend it to the profession, and especially to those who are giving special attention to diseases of the nervous system.

'The dose ranges between a desertspspoonful and two tablespoonfuls. If it tastes badly and keeps badly, the fault is in the druggist.'

OBSTETRICS AND GYNÆCOLOGY.

BRAUS ON PYOMETRA AND PYOKOLPOS LATERALIS FROM ABRASION OF A RUDIMENTARY VAGINA, IN A CASE OF UTERUS BICORNIS.—Dr. Otto Braus (*Berliner Klinische Wochenschrift*, March 9 and 16, 1874), reports a very interesting case occurring in the practice of Professor Spiegelberg. The person was twenty-six years old. She began to menstruate at fourteen. The catamenia continued regularly for a year and a half; then there was an arrest for six months, during which time she began to suffer from pressure on the rectum and bladder. On the return of the catamenia, this still continued. A tumour was made out by the medical attendant, and opened. No fluid came away, and she obtained no relief.

Another medical man was consulted, who punctured the swelling and evacuated a quantity of dark, syrupy blood. This gave immediate relief, and she continued quite free from all trouble until her marriage, which was about a year and a half before she came under the observation of Professor Spiegelberg, when she began again to suffer from pressure on the bladder and rectum, accompanied with dysmenorrhœa. She became pregnant nine months after marriage, and miscarried at three months. On her recovery she noticed a puriform discharge, which increased in quantity and became offensive. Whenever it stopped, she at once experienced discomfort in the bladder and rectum, with a forcing down of the womb. On examination, Professor Spiegelberg found a movable somewhat irregular elastic swelling, larger than a fist, situated in the front and towards the right side of the pelvis; it reached slightly above the anterior wall of the pelvis, and caused the anterior vaginal wall to project downwards. The cervix was pushed backwards and to the left, and discharged a copious purulent offensive matter. The uterine sound passed the normal distance to the left. As pressure on the tumour increased the flow from the os, the uterine sound was again passed with its point turned to the right. About two centimètres up the canal it slipped into a roomy cavity. A blunt-pointed bistoury was passed up the cervix, and an opening about an inch long made. The sac was emptied of a quantity of pus, and small stony hard blood-concretions. A distinct entrance into the left horn of the uterus could be felt; and about a centimètre-and-a-half above the os a fleshy septum with a free border.

This relieved, but did not cure, the trouble. The sac was then slit down to the bottom with scissors. Upon examination, a right and a left inner os could be distinguished. The walls of the cavity had all the characters of vaginal structure. Per rectum, the bicornate uterus could be easily defined; the uterine sound passed four centimètres into the right

horn. It was a case of uterus bicornis, with a cervix in common. The history proved that it could neither be a hæmatocele nor a cyst, the result of an abscess from parametritis.

The reporter of this case relates two somewhat similar instances occurring in the practice of Professor Breisky. One patient was a woman, twenty-five years old, the other was thirty-eight years old. The latter had borne four children before any urgent symptoms arose to attract attention. In both were the tumours slit up, and the patients made excellent recoveries. The diagnosis is not easy. It was not until the cavity was opened, and the free border of the septum was felt by the finger, together with the point of bifurcation per rectum, that Professor Spiegelberg could be certain what he had to deal with. He was not a little indebted to the cases reported by Professor Breisky for coming to a right conclusion. It was not until the sac was emptied that the bifurcation of the cervix could be felt.

W. C. GRIGG, M.D.

MISCELLANY.

THE GERMAN PUBLIC HEALTH CONGRESS will be held in Dantzic from September 9 to 12. Among the subjects to be discussed are the following:—1. The demands of hygiene with regard to new portions of towns, streets, and houses; 2. The influence of various dwellings on the health of their inhabitants; 3. The reasons for and against the collection of cases of various kinds of disease in one hospital; 4. Public abattoirs; 5. Water supply; 6. The employment of women in factories.

CREMATION.—The advocates of cremation in Bremen have raised money for a prize on the best economic and æsthetic means of performing the process. The essays must contain (1) Descriptions, and as far as necessary, drawings (models being subsequently added), of buildings and apparatus for the purpose of burning, with statements of cost; (2) Descriptions of the process of cremation, with a sufficient exposition of the experiments on the bodies of animals or men, on which the proposals are founded; (3) Estimates of the cost of cremation. The essays may be written in German, English, or French.

EDINBURGH MEMORIAL TO LIVINGSTONE.—It is proposed to erect a Medical Missionary Training Institution in Edinburgh as a memorial to Dr. Livingstone. The present Medical Missionary Institution in that city is the only one of its kind in the kingdom, and has furnished agents to all the chief missionary societies of this country; but it has outgrown its present premises in the Cowgate, and the committee are desirous of having a more commodious building wherein to carry on the training of medical missionaries and missionary nurses. They propose, therefore, to seize this opportunity of erecting a building which would be a suitable memorial to the greatest medical missionary whom this country has ever sent forth, and whose name is so peculiarly dear to Scotland. An influential meeting was held in Edinburgh last week to promote this object, and we have no doubt that it will be successfully carried out. The amount required is large, namely, 10,000*l*. But the committee have ascertained that it is a form of memorial which would be gratifying to the feelings of the family of the deceased; and Sir Bartle Frere has expressed his approval in the following terms: 'I have always felt that the Edinburgh Medical Missionary Society was doing a great work, and I am very glad to hear that you propose to enlarge its sphere of usefulness. I think there could not be a more fitting memorial to your great fellow-countryman; and with such an example before them I think the students of the Medical Missionary Society must prosper wherever they are sent. The thorough

training of good nurses to co-operate with the missionaries abroad is all that is needed to perfect the work of the society.' With such sanctions as these the appeal will recommend itself to a very wide circle, and the requisite sum of money is sure to be subscribed.

HOW SHALL YOUNG LADIES BE FLOGGED?—A Dublin physician has lately written to a medical contemporary explaining that he has been appointed to a good ladies' school in a large country town, and has been asked by the principal what mode of correction he would recommend as least likely to prove injurious to the young, but, it is to be feared, somewhat recalcitrant damsels under her charge. The physician seems to have been somewhat exercised in mind by this unexpected inquiry, and seeks information on the subject from 'experienced' readers. He fears that long impositions and confinement would be detrimental to the health of the fair rebels, and seems to lean to the heroic remedy of the birch, perhaps from remembrances of its efficacy in his own school-days. He 'partly' recommends a leather strap for the hands as preferable to the ruler or the cane. The 'physician' appears to contemplate the possibility of somewhat severe punishment being required in dealing with the Hibernian young ladies in question; since he goes on to ask if there is 'any risk in flogging a girl on the shoulders,' as 'a scar there would possibly prevent her appearing in evening dress for years.' Reverting to his favourite birch, he wishes to determine which is the more useful, that, or the leather strap; and challenges advice as to the employment of a slight riding-whip or 'riding-rod,' as it is termed by the amiable disciplinarian in charge of the school. We had thought that corporeal punishments were unknown in girls' schools, and greatly

on the decrease in boys; perhaps, however, the greater vivacity of the denizens of the sister isle requires very forcible measures of repression. As may be readily imagined, the queries of this undecided 'physician' evoked a shower of answers. One indignant lady suggested that the unfortunate medical adviser of ladies' schools should try the experiment of the various chastisements he so calmly suggests for the young girls on his own person; winding up with a recommendation that he should be flogged with nettles. Another correspondent recommends that all the floggings, whether with birch, ruler, or strap, should be applied outside the clothes, so as to avoid any danger of scars, and a third supplements the list of instruments of punishment by recommending the use of the slipper, or ladies' shoes, as having the merit of being always in readiness. For our own part, we should emphatically recommend that the directress of a school for girls who could ask such questions, and the medical man who could for one moment think of giving a serious reply to them, should be immediately removed from responsible positions, which on their own showing they are entirely unfit to hold.

NOTICE.

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Advertisements should be sent to the Office, 15 Waterloo Place, S. W., before Twelve o'clock on Tuesday morning.

RECORD OF APPOINTMENTS.

POOR LAW AND SANITARY SERVICE.

| NAME. | TITLE. | OFFICE. | DISTRICT. | SALARY PER ANNUM. | AREA. | POPULATION. |
|-------------------------|------------------|---|--|------------------------------|--------|-------------|
| Booth, John G. | L.R.C.P. Lond. | Med. Off. of Health (Medical Officer) | Padiham and Hapton Urban Sanitary District | £ s. d. 25 0 0 | — | 7,000 |
| Bradley, John | M.R.C.S. Eng. | Med. Off. and P.V. | { Workhouse, } Lunesdale Union. { No. 1. Dist. } | 11 0 0 49 0 0 and fees | 40,903 | 3,300 |
| Cameron, John | L.F.P.S. G. & S. | Med. Off. and P.V. | Lunart, Ardnamurchan, and Moidart Districts, Parish of Ardnamurchan. | — | — | — |
| Chabot, Herbert | M.R.C.S. Eng. | Medical Officer | St. George District, St. Giles, Camberwell | 100 0 0 | 342 | 12,401 |
| Clarke, John C. | M.B. | Med. Off. of Health | Little Hulton Urban Sanitary District | 10 0 0 | 1,706 | 4,805 |
| Cremen, Patrick J. | M.D. | Medical Officer | Infirmary, Cork Union | — | — | — |
| Cuthbertson, John M. | L.R.C.P. Ed. | Med. Off. of Health | Windhill Urban Sanitary District | 35 0 0 | 290 | 5,783 |
| Dowse, John . . . | L.S.A. Lond. | Med. Off. of Health | Denby Urban Sanitary District | 9 10 0 | 2,713 | 1,637 |
| Grimbly, Richard . | M.R.C.S. Eng. | Med. Off. of Health | Banbury Urban Sanitary District | 40 0 0 | 3,920 | 11,718 |
| Hannah, Nathan . | L.R.C.P. Ed. | Med. Off. of Health | Ashton in Makerfield Urban Sanitary District. | 30 0 0 | 6,250 | 7,463 |
| Jones, John, F. | L.R.C.P. Ed. | Med. Off. and P.V. | Towyn District, Machynlleth Union | 36 0 0 | 26,372 | 3,307 |
| Kirwan, Andrew, W. | M.D. | Med. Officer, P.V., & Reg. of Births, &c. | Kilmacthomas Dispensary Dist., Kilmacthomas Union. | 120 0 0 and fees. | 40,839 | 9,326 |
| Mac Lelland, Alexander. | M.B. | Med. Off. of Health | Bonhill, Dumfries-shire. | — | — | — |
| O'Sullivan, Stephen | M.D. | Medical Officer | Cork No. 5 Dispensary District, Cork Union . | 100 0 0 | — | — |
| Ruddick, George M.A. | L.K.Q.C.P. Irel. | Med. Off. and P.V. | Sutton upon Derwent District, Pocklington Union. | 24 0 0 | 14,718 | 2,205 |
| Wright, Morden . | M.R.C.S. Eng. | Medical Officer. | No. 8 District, St. Saviour's Union. | 130 0 0 | — | — |

MISCELLANEOUS.

| NAME. | TITLE. | OFFICE. | INSTITUTION OR PLACE. |
|-------------------------|---------------|--|--|
| Banks, William M. . . . | M.D. | Registrar. | Royal Infirmary School of Medicine, Liverpool. |
| De Sanctis, Luigi . . . | M.B. | Surgeon | Benin River, West Coast of Africa. |
| Gladstone, John H. . . | Ph.D. | Fullerian Professor of Chemistry | Royal Institution of Great Britain. |
| Grace, Edward M. . . . | L.R.C.P. Ed. | Medical Officer | West Gloucester Friendly Society, Thornbury. |
| Hough, James | M.R.C.S. Eng. | Medical Officer | Cambridge Police Force. |
| Munro, William | M.D. | Head of Medical Branch | Army Medical Department. |
| Rutherford, William . . | M.D. | Head of Sanitary Branch | Army Medical Department. |

HOSPITALS, ETC.

| NAME. | TITLE. | OFFICE. | INSTITUTION. |
|----------------------------|----------------|-------------------------------------|---|
| Anderson, Thomas | M.B. | Medical Superintendent . | Mid-Lothian and Peebles County Asylum. |
| Carlyle, John | Mr. | Resident Medical Officer . | Greenock Infirmary. |
| Daly, Richard A. S. . . . | L.K.Q.C.P.I. | Resident Medical Officer . | Chorlton-upon-Medlock Dispensary. |
| Finlay, David W. | M.D. | Resident Physician's Assistant | Middlesex Hospital. |
| Greensill, Edward S. . . . | M.R.C.S. Eng. | House Surgeon | St. Bartholomew's Hospital. |
| Grigg, John C. | F.R.C.S.E. | Surgeon-Accoucheur . . . | St. George and St. James's Dispensary. |
| Lill, William F. | M.B. | House Surgeon | Lincoln County Hospital. |
| MacFie, Johnston | M.B. | Resident House Surgeon . | Edinburgh Royal Maternity Hospital. |
| Masterton, John | M.B. | Assistant Medical Officer . | Wiltshire Lunatic Asylum, Devizes. |
| Nicholson, Arthur | L.R.C.P. Lond. | House Surgeon & Secretary | Torbay Infirmary and Dispensary, Torquay. |
| Petit, Joseph | L.K.Q.C.P.I. | Assistant to Medical Superintendent | Richmond District Lunatic Asylum, Dublin. |
| Powell, William | M.B. | Physician | Torbay Infirmary and Dispensary, Torquay. |
| Sansom, Arthur E. | M.D. | Assistant Physician . . . | London Hospital. |
| Saundby, Robert | L.R.C.P. Ed. | Resident Physician . . . | Royal Infirmary, Edinburgh. |
| Sparrow, William C. . . . | L.K.Q.C.P.I. | House Surgeon | Bury Dispensary. |

RECORD OF VACANCIES.

HOSPITALS, ETC.

| INSTITUTION. | OFFICE. | SALARY PER ANNUM, TERMS, ETC. |
|---|-----------------------------------|---|
| University College Hospital | Resident Medical Officer . | £ s. d. |
| Glasgow Royal Lunatic Asylum | Resident Physician Superintendent | 600 0 0 house, coal, &c. |
| Western Infirmary of Glasgow | Superintendent | 250 0 0 board and lodging. |
| Hospital for Women | House Physician | — |
| Carmarthen Infirmary | House Surgeon | 100 0 0 lodgings, &c., and the privilege of taking two apprentices. |
| Wolverhamptonshire and Staffordshire General Hospital | House Surgeon | 100 0 0 board, furnished apartments, &c. |
| Surrey Lunatic Asylum, Tooting | Junior Assistant Medical Officer | 170 0 0 furnished apartments, &c. |
| Gray's Hospital, Elgin | House Surgeon | 55 0 0 board and lodging. |
| Birkenhead Borough Hospital | Junior House Surgeon . . . | 40 0 0 board and residence. |
| Westminster Hospital | { Obstetric Physician | — |
| Queen's Hospital, Birmingham | { Assistant Obstetric Physician . | — |
| General Hospital, Birmingham | { Pathologist | — |
| Warneford Hospital, Leamington | { Ophthalmic Surgeon | — |
| | Res. Registrar and Pathologist. | 100 0 0 board and residence. |
| | House Surgeon | 100 0 0 board, lodging, &c. |

POOR LAW AND SANITARY SERVICE.

| UNION, DISTRICT, ETC. | OFFICE. | SALARY PER ANNUM, TERMS, ETC. | AREA. | POPULATION. |
|---|---------------------------------------|--------------------------------------|--------|-------------|
| Coventry Urban Sanitary District | Med. Off. of Health | £ s. d. | — | 37,670 |
| Margate Urban Sanitary District | Med. Off. of Health | 100 0 0 | — | 12,000 |
| Mohill Union, Rynn Dispensary District | Med. Off., P.V. & Reg. of Births, &c. | 100 0 0 and fees | 29,105 | 8,825 |
| Westminster Union, Industrial School | Medical Officer | — | — | — |
| Dartford Union, No. 1 District | Medical Officer | 65 0 0 and fees | — | — |
| Daverney Union, No. 1 District | Med. Off., & Pub. Vac. | 80 0 0 and fees | 14,739 | 6,142 |
| Lambeth, Princes Road Infirmary | Res. Med. Off. and Dispenser. | 100 0 0 board, apartments, &c. . . . | — | — |
| Durham Rural Sanitary District | Med. Off. of Health | 200 0 0 | — | — |
| Thornton and Clayton Urban Sanitary Districts | Med. Off. of Health | — | 4,300 | 9,758 |
| Denholme Gate Urban Sanitary District | Med. Off. of Health | 50 0 0 | 2,500 | 3,456 |

MISCELLANEOUS.

| INSTITUTION OR PLACE. | OFFICE. | SALARY PER ANNUM, ETC. |
|--|------------------------------------|---|
| Royal Society of Musicians | Aural Surgeon | £ s. d. |
| School for the Indigent Blind | Consulting Physician | — |
| Oxfordshire | Public Analyst | — |
| Westminster Hospital Medical College | Lecturer on Midwifery, &c. | — |
| Stockton on Tees Friendly Societies Medical Association. | Surgeon | 100 0 0 to commence, 30 <i>l.</i> per annum for rent and taxes, and midwifery and vaccination fees. |

The London Medical Record.

WEDNESDAY, MAY 20, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BINZ AND HELMHOLTZ ON THE TREATMENT OF HAY-FEVER.

We reproduce from *Nature* the following paper on hay fever, by Professor Binz, of Bonn.

From what I have observed of recent English publications on the subject of hay fever, I am led to suppose that English authorities are inaccurately acquainted with the discovery of Professor Helmholtz, as far back as 1868, of the existence of uncommon low organisms in the nasal secretions in this complaint, and of the possibility of arresting their action by the local employment of quinine. I therefore purpose to republish the letter in which he originally announced these facts to myself, and to add some further observations on this topic. The letter is as follows (see Virchow's *Archiv*, vol. xlv.)

'I have suffered, as well as I can remember, since the year 1847, from the peculiar catarrh called by the English "hay-fever," the speciality of which consists in its attacking its victims regularly in the hay season (myself between May 20 and the end of June), that it ceases in the cooler weather, but on the other hand quickly reaches a great intensity if the patients expose themselves to heat and sunshine. An extraordinarily violent sneezing then sets in, and a strongly corrosive thin discharge, with which much epithelium is thrown off. This increases, after a few hours, to a painful inflammation of the mucous membrane and of the outside of the nose, and excites fever with severe headache and great depression, if the patient cannot withdraw himself from the heat and the sunshine. In a cold room, however, these symptoms vanish as quickly as they come on, and there then only remains for a few days a lessened discharge and soreness, as if caused by the loss of epithelium. I remark, by the way, that in all my other years I had very little tendency to catarrh or catching cold, while the hay-fever has never failed during the twenty-one years of which I have spoken, and has never attacked me earlier or later in the year than the times named. The condition is extremely troublesome, and increases, if one is obliged to be much exposed to the sun, to an excessively severe malady.

'The curious dependence of the disease on the season of the year suggested to me the thought that organisms might be the origin of the mischief. In examining the secretions I regularly found, in the last five years, certain vibrio-like bodies in it, which at other times I could not observe in my nasal secretion. . . . They are very small, and can only be recognised with the immersion-lens of a very good Hartnack's microscope. It is characteristic of the common isolated single joints that they contain four nuclei in a row, of which two pairs are more closely united. The length of the joints is 0.004 millimètre,

Upon the warm objective-stage they move with moderate activity, partly in mere vibration, partly shooting backwards and forwards in the direction of their long axis; in lower temperatures they are very inactive. Occasionally one finds them arranged in rows upon each other, or in branching series. Observed some days in the moist chamber, they vegetated again, and appeared somewhat larger and more conspicuous than immediately after their excretion. It is to be noted that only that kind of secretion contains them which is expelled by violent sneezings; that which drops slowly does not contain any. They stick tenaciously enough in the lower cavities and recesses of the nose.

'When I saw your first notice respecting the poisonous action of quinine upon infusoria, I determined at once to make an experiment with that substance, thinking that these vibrionic bodies, even if they did not cause the whole illness, still could render it much more unpleasant through their movements and the decompositions caused by them. For that reason I made a neutral solution of sulphate of quinine, which did not contain much of the salt (1:800), but still was effective enough, and caused moderate irritation of the mucous membrane of the nose. I then lay flat on my back, keeping my head very low, and poured with a pipette about four cubic centimètres into both nostrils. Then I turned my head about in order to let the liquid flow in all directions.

'The desired effect was obtained immediately, and remained for some hours; I could expose myself to the sun without fits of sneezing and the other disagreeable symptoms coming on. It was sufficient to repeat the treatment three times a day, even under the most unfavourable circumstances, in order to keep myself quite free.* There were then no such vibrios in the secretion. If I only go out in the evening, it suffices to inject the quinine once a day, just before going. After continuing this treatment for some days the symptoms disappear completely, but if I leave off they return till towards the end of June.

'My first experiments with quinine date from the summer of 1867; this year (1868) I began at once as soon as the first traces of the illness appeared, and I have thus been able to stop its development completely.

'I have hesitated as yet in publishing the matter, because I have found no other patient† on whom I could try the experiment. There is, it seems to me, no doubt, considering the extraordinary regularity in the recurrence and course of the illness, that quinine had here a most quick and decided effect. And this again makes my hypothesis very probable, that the vibrios, even if being no specific form but a very frequent one, are at least the cause of the rapid increase of the symptoms in warm air, as heat excites them to a lively action.'

I should be very glad if the above lines would induce medical men in England—the haunt of hay-fever—to test the observation of Helmholtz. To most patients the application with the pipette may be too difficult or impossible; I have therefore

* There is no foundation for the objection that syringing the nose could not cure the asthma which accompanies hay-fever; for this asthma is only the reflex effect arising from the irritation of the nose.—*Binz*.

† Helmholtz, now Professor of Physics at the University of Berlin, is, although M.D., not a medical practitioner.—*B*.

already suggested the use of Weber's very simple but effective nose-douche. Also, it will be advisable to apply the solution of quinine *tepid*. It can, further, not be repeated often enough that quinine is frequently adulterated, especially with cinchonia, the action of which is much less to be depended upon.

Dr. Frickhöfer, of Schwalbach, has communicated to me a second case in which hay-fever was cured by local application of quinine (Virchow's *Archiv*, vol. li.). Professor Busch, of Bonn, authorises me to say that he succeeded in two cases of 'catarrhus æstivus' by the same method: a third patient was obliged to abstain from the use of quinine, as it produced an unbearable irritation of the sensory nerves of the nose. In the autumn of 1872, Helmholtz told me that his fever was quite cured, and that in the meantime two other patients had, by his advice, tried this method, and with the same success.

KÜSTER ON THE INFLUENCE OF THE NEW RIFLES ON THE ANIMAL BODY.

In a communication made to the Berlin Medical Association, by Dr. Küster, Surgeon to the Augusta Hospital, Berlin (*Separat Abdruck aus der Berliner Klinischen Wochenschrift*, 1874), the author first refers to the experiments and inquiries of Professor Busch, of Bonn, who found that the Chassepot ball, fired from short distances, made most frightful wounds in the human body. The wound of entrance might be small, but that of exit was often of the size of a man's fist, accompanied by the most extensive smashing of bone. Busch concluded from this that the ball was actually in part melted by the sudden arrest of its very high rate of velocity. The author, in experiments he performed in the winter of 1872-3, obtained similar results to those of Busch, but he does not think the explanation given the correct one.

In order to further investigate the matter, Dr. Küster obtained permission from the Ministry of War to undertake the necessary experiments at Spandau. The animals used were horses and sheep, and the weapons tested, a muzzle-loading sporting gun with conical balls, and the needle gun (*Zündnadel*), Chassepot, Mauser, and Henry-Martini rifles. The distance at which these weapons were fired, were 5, 20, 100, and 800 paces.

A salvo was first fired from the various rifles at the same moment, which killed the animal, and then the dead body was further fired into. At the end of eight days the already somewhat decomposed body was again fired at. A large number of experiments were made in this way.

Amongst the results obtained were the following.

1. The projectile caused no appreciable difference as regards the wound, whether fired at the dead or the living body. It should be borne in mind that the animal skin resists much more than the human the entrance of the projectile, and the exit-wound is relatively not so large as in the human body.

2. The amount of injury is inversely as the distance, and in direct proportion to the velocity of the projectile. The balls delivered from the sporting gun generally lodged, and produced but trifling injury. Next in intensity were the wounds produced by the Needle-gun. The Chassepot caused yet more extensive injury, whilst the Mauser produced complete destruction of bone and soft parts through a large extent.

3. The extensive character of the wound so produced is due to the sudden heating of the lead causing it to lose its cohesive power, but not, as Busch believed, actually to melt. Hence small particles are detached, and remain adherent to the bones and soft parts. The ball is flattened, twisted, and divided into two or several portions; and in this fashion, accompanied by bone-fragments, makes its exit from the body. That the lead is merely softened, and not actually melted, the following experiment of Schädel, in Heidelberg, would seem to establish. He fired at an iron target on which he had hung some bags of powder. The bags were often burst, but in no instance did an explosion take place, which must have occurred were the lead heated sufficiently to become melted; besides, the maximum of heat was thus developed, which would not occur in the animal body where the flight of the projectile is only partially and gradually arrested. That lead does lose its coherence when heated, is easy to prove by dropping two bullets, one strongly heated, the other cold, a height of some six feet to the ground; the heated bullet will be distinctly flattened, while the other remains unaltered. The huge wounds, then, produced by leaden bullets fired with great velocity at short distances, arise from the splitting up of the bullet into pieces, after striking a bone, owing to the loss of cohesion due to the heat developed by the sudden retardation of velocity. These fragments of lead, and pieces of bone carried along with them, make the extensive damage uniformly witnessed under the foregoing circumstances. It only remained for Dr. Küster to show that bullets composed of harder metal did not occasion the damage created by the ordinary leaden bullet. It appears that our Henry-Martini rifle affords the desired conditions. From it is fired a bullet formed from an amalgam of lead and tin, in the proportion of twelve parts to one. The metal is first cast in long rods, then cut to the proper lengths and finally compressed in a mould. The velocity of the projectile is about the same as that of the Mauser rifle, but the damage done is infinitely smaller. The wound of entrance in the bone in the case of the latter rifle is often large, irregular, and much splintered, the destruction gradually increasing in amount towards the wound of exit; while the Henry-Martini bullet always makes a sharp cut circular opening in the bone of its own diameter in size. The wound of exit is larger but is also round, and splintering of the bone is either altogether absent or but very limited. The ball is but seldom deformed. At a hundred paces the Henry-Martini bullet goes right through the bulkiest part of the horse, while the Mauser bullet lodges. Of course a lodged bullet must always prove a source of anxiety and danger.

Amongst the conclusions drawn by the author, one is, that from a medico-legal point of view there is no appreciable difference between gunshot wounds inflicted before and after death. It is easy, especially if the bone be traversed, to distinguish between a wound inflicted by a hardened or a leaden bullet, or whether it was caused by a weapon discharged at a short or a long range. The knowledge thus gained may prove of great assistance in deciding whether in a given case amputation is needed or not. The author likens the soft leaden bullets to explosive bullets, and thinks they should be equally banished from use as weapons of war. Cases occurred during the last war, where it was firmly believed, the damage done being so enormous, that explosive

bullets must have been employed. The author considers that his experiments establish a satisfactory explanation of this apparent infringement of the rules of civilised warfare, if indeed war can in any respect be called civilised.

WILLIAM MAC CORMAC.

PRACTICAL SURGERY.

TREATMENT OF HÆMORRHOIDS BY LINEAR CAUTERISATION OF THE ANUS. BY DR. WOILLEMIER.

After having written an exact history of all the methods of treating hæmorrhoids, and after having either tried the greater number of them in private or hospital practice, M. Woillemier (*L'Union Médicale*) has finally fixed on the following rational procedure, as removing all dread of the operation both in the operator and in the patient.

The patient, whose rectum has been emptied in the morning by means of an injection, ought to be chloroformed; but if he prefer to remain awake, it is of little importance, as the operation only lasts some seconds. He is laid on the edge of a bed, with one leg extended, and the other bent as if he were going to be operated on for fistula. The assistant raises the disengaged buttock, the surgeon paints the anus and the surrounding parts largely with collodion, whilst an assistant, by means of bellows, drives off the fumes of the ether, which are sure to catch fire when a highly heated cauteriser is brought near them. During these preparations, two knife-shaped cauterisers have been placed in a small furnace, full of charcoal or burning wood. The blades of these cauterisers should be two centimètres long and one wide; the tip and edge should be blunt, as in ordinary cauterisers, but the back should be four or five millimètres thick, so as to hold enough heat. The surgeon takes one of these cauterisers when it is white-hot, and introduces it about one centimètre into the anus, bearing with the shoulder of the instrument rather more on the cutaneous than on the mucous orifice, and makes four cauterisation lines, before, behind, on the right and on the left. The operation is terminated when it has lasted five or six seconds. The patient is brought back to consciousness, and simple water-dressings only are applied to the anus. We must premise that, under the influence of the congestion produced by cauterisation, the hæmorrhoidal tumour will reappear the first day or so, and sometimes larger than usual, but no notice must be taken of it. We can only relieve the pain of the patient, pain which has no relation to the cauterisation, by coating over the hæmorrhoids with a narcotic ointment, and covering them up with a poultice. The tumour soon ceases to be painful, and is at last completely and spontaneously retracted. The time necessary for cure varies only according to the size of the hæmorrhoids, the relaxation of the anus, and the age of the patient. It has never exceeded one month, and has sometimes been much less. In some subjects, even when circumstances have made success doubtful, cure has taken place as in simple cases. The patient ought to be chloroformed, for, though the operation is rapid, it is also very painful, particularly in private practice, where the assistance is less efficient than in an hospital. The patient may struggle after one or two applica-

tions of the cautery, and even refuse to allow others to be made, so that the operation would remain incomplete. The orifice of the anus and the surrounding parts must be painted with collodion. This is a very important precaution. All surgeons have affirmed the difficulty of preventing the effects of radiating heat. To preserve the parts from these effects, cloths steeped in cold water and thin plates of wood have been used; but not only are these in the operator's way, but they are not, as a rule, efficacious. Collodion, on the contrary, even when applied in a thin layer only, forms an artificial epidermis scarcely permeable to heat and sufficiently protecting the skin.

It is necessary to dissipate the ether-vapour, or it would take fire as soon as the heated cauteriser is brought near the anus. The accident would not be of much importance, for the burning vapour is easily extinguished by blowing it out; but it is better to avoid it altogether. It is easy to understand the importance of the use of collodion in relation to the pain which succeeds the operation. The patient cannot feel pain in the points to which the iron has been applied, for the tissues are dead, but he suffers in the surrounding parts which have been attacked by the radiating heat, and the painful nature of superficial burns is well known. These burns, however, are not very serious, and only last about four days, at the time when the inflammation necessary for the falling off of the sloughs develops itself, or during defecation after the sloughs have fallen off. The cauterisers ought to be knife-shaped, or even with round points. To ensure the rapidity of the operation, they should be heated to white heat. One operation is frequently enough, but more than two are never necessary, how large soever the hæmorrhoidal tumour may be, for we do not act directly on the latter, but on the anus.

In some cases, the tumour cannot be reduced before operation, or at least entirely so, when it still escapes outwardly in consequence of the involuntary contractions of the patient. No notice must be taken of this accident. The cauteriser is slipped between the tumour and the walls of the anus, for it is of little consequence if the hæmorrhoids should be lightly cauterised by the back of the instrument.

Sometimes the shoulder of the cauteriser implicates the cutaneous circumference of the anus, but that is of no importance; it is even sometimes useful when the anus is considerably relaxed. There is no need to dread hæmorrhage, for the cauteriser interferes only with the mucous membrane, the submucous cellular tissue at the entrance of the anus, and the skin at the edge of the orifice. At all these points the vessels are small, and when the hæmorrhoidal tumour is touched by the back of the cauteriser, it is in so light a manner that no vessel of any importance can be opened.

If any accident is to be feared, it would be stricture of the rectum; but the four cicatrices which have been formed at the entrance of the anus, although possessed of great retractile power, are made linear in the direction of the intestine. Between them are intervals, occupied by highly elastic tissue, which make stricture impossible. It may be objected that, if the anus remain sufficiently dilatable, the patient may have a relapse. This accident is certainly not impossible, but it is the business of the surgeon to estimate the state in which he finds his patient. If he be going to operate upon an old person having a large and old standing

tumour, and whose anus has little resilient power, he should lean a little more heavily on the cauteriser, so as to implicate a greater thickness of tissues than in ordinary cases; and by this procedure he will be sure to avoid a relapse.

ANATOMY AND PHYSIOLOGY.

GIACOMINI ON A LARGE COMMUNICATION BETWEEN THE VENA PORTÆ AND THE ILIAC VEINS ON THE RIGHT SIDE.—Dr. Giacomini read, at the Academy of Medicine at Turin, on November 28, 1873, the history of a woman, aged twenty-two, who had had intermittent fever, with enlargement of the spleen, and was admitted into the hospital for bronchopneumonia and hydrothorax. She was recovering after paracentesis thoracis, but was much troubled with enteralgia and headache, when one day, after a surfeit, she raised herself suddenly in bed, fainted, and remained in a prostrate condition for half-an-hour, when she died.

The cranial and thoracic organs presented nothing to note, except miliary tubercles of the lungs.

The spleen was enormously enlarged, its lower end resting on the left iliac fossa. On the inner edge of the spleen was a large tumour formed of semi-clotted blood, contained between the layers of the gastro-splenic omentum. This extravasation seemed to have been the cause of death. There was catarrh of the lining membrane of the stomach.

On trying to turn down the right side of the abdominal parietes, a large canal was noticed, which was taken at first for an empty convolution of small intestine, but was seen, on more attentive examination, to come out of the pelvis on the right side of the pubes and pass between the two layers of the suspensory ligament of the liver, running along with the obliterated umbilical vein through the longitudinal to the transverse fissure.

The liver was cirrhotic, and on microscopic examination, its portal capillaries were found obstructed. The ductus venosus was obliterated.

On more minute examination of the parts, the splenic vein was found to have a diameter of 16 millimètres (= .63 of an inch) and presented a slight enlargement of its posterior wall, just before receiving the inferior mesenteric vein. The superior mesenteric vein was a little smaller than the splenic (12 millimètres), the vena portæ somewhat larger (18 millimètres = .7 inch). The right branch of the vena portæ was natural. The left branch, much more voluminous than the right, presented a dilatation into which the umbilical vein was inserted. The latter was completely closed and obliterated. Other veins, communicating with this branch of the vena portæ, entered the liver, and of these two, after traversing the parenchyma of the liver, reunited and formed the canal which had been taken for a convolution. This large vein ran down in the suspensory ligament, above the round ligament, and furnished a branch of the size of the internal saphenous to the right inferior phrenic vein, by means of which it opened into the vena cava in its passage through the diaphragm. It ran to the umbilical depression or cicatrix along with the umbilical vein, being covered by the peritoneum and by the 'fascia umbilicalis,' described by Richet (unusually developed in this subject), then became tortuous, and passed into the sheath of the rectus muscle. Here it divided into two, which ran down

as the venæ comites of the epigastric artery, after receiving the venæ comites of the upper part of that vessel. Besides these, there were other branches which do not need any more particular description. At Poupart's ligament, a large part of the vein entered the external iliac at the usual point of junction of the epigastric vein, but two branches were given off, which united and joined the obturator vein to open into the internal iliac. The volume of the external iliac vein was enormously increased by the junction of this great vein from the liver, but there was no irregularity in its distribution. There was no dilatation of the hæmorrhoidal veins, nor any pronounced hæmorrhoidal formation. The appearance of the abnormal veins strongly indicated that the direction of the current in them had been by reflux from the portal veins into those communicating through the iliacs with the vena cava.

The author regards this anatomical anomaly in three points of view; 1. With regard to the changes which the reflux of blood from the portal vein may have caused in the viscera, and especially the lesions which produced death; 2. With regard, generally, to the re-establishment of circulation after the portal circulation is interrupted; 3. With regard to the arrangements in the normal anatomy to favour the re-establishment of a collateral circulation in conditions of disease.

1. In the first place, he points out the way in which cirrhosis of the liver acts by throwing the blood back on the portal radicles, causing ascites, increased volume of the spleen, and hæmorrhage from some of the congested veins—and he refers to Raikem for a collection of such observations.* Such hæmorrhages usually act primarily through the vessels in the gastro-intestinal mucous tract. In this instance the large vein or veins which gave way must have been connected with the vasa brevia entering the splenic vein; and he believes that the enormous weight of the spleen had its influence in producing the rupture, having ascertained that the patient just before her death had made an abrupt movement of the body after a very hearty meal.

2. The ways by which, in such portal obstruction, the blood finds an anastomosis with the system of the vena cava, are various. The communications of the hæmorrhoidal and œsophageal veins are well known. Schniedel† has pointed out some which are less known—of the hæmorrhoidal with the vesical veins, of the coronaria ventriculi and gastro-epiploic with the renal, of the vasa brevia with the left inferior phrenic, of the pyloric with the right inferior phrenic, of the superior mesenteric and left renal. And besides these communications, which are formed by anastomosing branches of some size, Retzius‡ has described (and his descriptions have been confirmed by Hyrtl) numerous capillary communications at various parts of the abdominal parietes.

3. The normal anastomoses may become dilated in conditions of disease, though the dilatation usually passes unobserved in consequence of the vessels not having been injected before the *post mortem* exami-

* 'Observations et aperçus sur quelques affections morbides de la veine porte,' Thèse, lue à l'Académie Royale de Médecine de Belgique, 1845, p. 31.

† 'De varietatibus venarum, plerumque magni momenti,' Erlangen; also Robin (*Bulletin de l'Académie de Médecine de Paris*, tome xxiv. p. 962.)

‡ Bemerkungen über Pfortader, &c., in *Zeitschrift für Physiologie*, von Tiedemann und Treviranus, 1833, vol. v. p. 105, or *Archives Générales de Médecine*, 1835, sér. 2, vol. vii. p. 118.

nation. He refers, however, to cases published by Gubler,* Lyons,† Virchow,‡ and Hyrtl,§ in which one or other of these normal anastomoses has been found dilated under circumstances of portal obstruction.

But besides these anastomoses with the venous portion of the portal vein, there are other branches joining its trunk, or arterial portion, first described by Sappey,|| under the name of 'accessory portal veins,' which, arising in the stomach, the gall-bladder, the lower surface of the diaphragm, or the abdominal parietes above the umbilicus, go to the liver, and are distributed in its substance with the portal veins.

The accessory portal veins which proceed from the abdominal parietes will throw light on the case before us. In fact, those arising from the diaphragm and abdominal wall run between the layers of the suspensory ligament of the liver to terminate in the left branch of the vena portæ, near the termination of the umbilical vein—thus establishing a communication between the arterial part of the vena portæ and the phrenic veins on the one hand, and the superior and inferior epigastric and cutaneous veins of the abdomen on the other. In the normal condition, they will be found in various numbers, anastomosing freely together and running along with the round ligament. If not injected, they are so fine as to be hardly visible; but when the arterial portion of the vena portæ is obstructed, they are the first to yield to the obstacle and become dilated.

The large anomalous veins which in the present case established the communication between the portal and systemic veins were obviously nothing more than an enormous development of these normal veins, as was found by their course corresponding in every particular to that of the accessory portal veins from the upper abdominal parietes, their upper part being surrounded by the liver-substance and terminating above in two large trunks, distributed exactly like the vena portæ, and these emerging from the liver in a large vein running in the suspensory ligament, with a large branch to the diaphragm, forming an anastomosis with the vena cava, while the great bulk of the blood poured itself into the right epigastric, which had thus acquired an enormous volume. Thus the singular anomaly, observed in the case related, is traced back to the point of normal anatomy first described by Sappey, whose observations, indeed, were called forth by some cases of cirrhosis of the liver, which had come under examination about that time.

It is true that these examinations are not all of equal value, nor entirely free from ambiguity, and in some of them the condition of the liver is passed over without notice. Still, in order to complete the subject, a synoptical table is added to the paper, referring to sixteen cases in which communications between the vena portæ and the iliac veins have been traced. Five of these belong to Sappey, and three to Bamberger, and in all these the liver was cirrhotic, except in one of Bamberger's, where the obstruction was caused by thrombosis of the vena portæ.

In observations on these cases, the author is dis-

posed to admit one of them, and only one,* as an instance of anatomical anomaly, representing, as he believes, an arrest of the abdominal circulation at a stage corresponding to its condition in batrachians, saurians, and some of the cetaceans.

This point is elaborated in the rest of the paper, and a few remarks are made as to the diagnostic and clinical value of such dilatations of the accessory portal veins. Finally, the paper is illustrated by two very carefully lithographed diagrams.

T. HOLMES.

NOTHNAGEL ON THE FUNCTION OF THE BRAIN.
The results of the previous experiments of Dr. Nothnagel have already been noticed in the LONDON MEDICAL RECORD (December 24, 1873). He has continued his researches on rabbits, and used the method of injection with chromic acid (Virchow's *Archiv*, vol. lx.). When only one lenticular body (nucleus lenticularis) was operated on, the results were the following. There were deviation of the leg of the opposite side (right) towards the middle line, and that of the same side (left) outwards; a lateral curvature of the spine with the convexity turned towards the opposite side (right), and at the same time a moderate cyphosis. The animal could, however, execute all voluntary movements. A different state of things occurred when both nuclei lenticulares were operated on. In twenty-six cases the author succeeded with the operation, and the results in all the cases coincided. Many results were negative, when the chromic acid focus did not lie exactly in both nuclei lenticulares. The introduction of a fine cannula and injection of chromic acid into the nucleus lenticularis were not followed by any phenomena of stimulation; the animal remained quite as quiet as if nothing had happened. When the bilateral injection was successfully executed and the animal was placed on the ground, it remained sitting and quite motionless, and when it was not disturbed, it remained in this condition for hours together. The animal did not make the least attempt at voluntary movements, and had a stupid and sleepy appearance. The spinal column was sometimes straight, sometimes cyphot, but never curved laterally. The ears were erect, and never laid backwards upon the neck. The respiration and action of the heart were normal.

If the fore limbs were carefully extended so that the animal did not lose its equilibrium, and though the feet might be placed in a very unnatural and awkward position, as over the neck, they were not drawn back, as always occurs in the normal animal. Slight pinching of the tail, which a normal animal would not notice, was followed by withdrawal of the feet from the unnatural position, and the animal appeared as if it would spring; but with one spring the movement came to an end, and the animal became motionless as before. The same thing could be repeated over and over again. A brilliant light held before the eye caused the pupil to contract, and the eyelids to close, but the animal remained motionless. In four or five cases, pinching of the tail was followed by the animal springing four, six, or even twelve or sixteen times. The animal sat without making any attempt at spontaneous movement; and remained motionless for hours, and, if not disturbed, until death occurred. It presented the well-known ap-

* Thesis on Cirrhosis, 1833.

† Medical Press, 1849.

‡ Verhandlungen der Physical.-Medizin. Gesellschaft in Würzburg, 1856.

§ Medizinische Jahrbücher der k.k. Oesterreich-Staaten, Band xxvii.

|| Traité d'Anatomie, 2nd éd. p. 329.

* Menière, Archives Générales de Médecine, tome x. p. 381.

pearance of an animal from which the cerebral hemisphere had been removed. Further, the animals so operated on never ate of their own accord. Evacuation of the urine seemed to be rendered more difficult. Most of the animals died on the second or third day, but six lived till the seventh day, and were then very emaciated. The *post mortem* examination showed a circumscribed chromic acid focus of the size of a lentil in each nucleus lenticularis. When the focus was of this size, and was situated in the middle and extended towards the middle line and posterior part of the nucleus, then the characteristic symptoms were produced. If, however, the one nucleus were less affected than the other, or if the chromic acid had not affected the nucleus sufficiently in its depth, then the characteristic symptoms were not exhibited.

The author has already described the springing movements produced by injury of a distinct spot in the corpus striatum, called by him 'nodus cursorius.' When both nuclei lenticulares were operated on, and then the nodus cursorius was irritated by puncture with a fine needle, the springing of the animal from the table could still be produced. The animal commenced of itself to spring (when the nuclei lenticulares had been properly injured) from half a minute to two minutes after puncture of the nodus cursorius, and continued to spring until it met with an obstacle; when it again sat motionless, with its limbs in the same position as in the moment of bounding. The animal which had the nuclei lenticulares intact, when it met with an obstacle, commenced again to spring, without any new stimulation being applied to it.

In a third series of experiments, the author operated on both corpora striata. It was difficult to reach these organs and destroy them totally. The injection method could not be employed, for the fluid found its way to the fourth ventricle and caused the death of the animal. Their destruction was therefore effected by introducing, through a hole in the skull, a fine needle, and breaking them up. The symptoms which followed differed entirely from those produced by injury of the nuclei lenticulares. The most common effect was the following. When the point of the needle entered the ganglia the animal sat quite still. In a time, varying from a quarter of a minute to two minutes, the animal sprang about violently, to one side and to the other, avoiding obstacles in its path. The sensibility of the ocular and auditory nerves seems to be more increased than that of the cutaneous nerves. This increased sensibility remained in a diminishing degree for a few hours, at the very longest two days. The animals could execute voluntary movements. In a few days, scarcely anything pathological was to be observed.

The explanation given by the author of the symptoms produced by injury to the nuclei lenticulares is, that by extirpation of these organs the collective nerve-channels which conduct the motor voluntary impulses from their place of origin, the hemispheres, to the channels lying more posteriorly and peripherally, are interrupted. According to Meynert's expression, the collective 'psychomotor' paths are divided.

Regarding the experiments on the corpora striata, the author is of opinion, and he expresses this opinion with all reserve and as hypothetical, that the nucleus caudatus stands in relation to all those combined forms of movement which are excited by a psychical process, but then continue automatically without any

new voluntary impulse. Such a movement is seen in the play of the facial nerve in laughing, where the laughing lasts for a time, after the psychical process, which originally excited it, is already extinguished. The same is the case with running.

WM. STIRLING, D.Sc., M.B.

KOROWIN ON THE FERMENTATIVE ACTION OF THE PANCREATIC JUICE AND OF THE PAROTID GLAND ON STARCH IN NEW-BORN INFANTS.—Dr. Korowin (*Central. Bull.* 1873, p. 271-305) obtained the following results.^a The pancreatic juice during the first month of life had absolutely no power of converting starch into sugar. In the second month the action was very slight, and by the end of the third month the action was so strong that a quantitative analysis was in some cases possible. Towards the end of the first year it had arrived at its full power. The secretion of the parotid gland, on the other hand, changed on the first day of life a starch enema into sugar, and quantitative analysis could be made. The stronger and bigger the child, the more powerful was this property. The saliva could be collected from a child's mouth the moment of birth, but no great amount could be obtained until the end of the first month. By the end of six weeks any amount could be collected. He compared the saliva of a child at eleven months with that of a full grown person, and found that the amount of sugar formed was the same in each.

W. C. GRIGG, M.D.

LAHS ON THE CAUSE OF THE FIRST INSPIRATORY ACT IN INFANTS.—H. Lahs (*Archiv Gynakol.* iv. 1873) endeavours to controvert the opinion of Schwartz—the want of oxygen through the arrest of the placental circulation—by showing that a child may remain without breathing from ten to fifteen minutes after its stoppage; and the theory of Schultze—irritation of the skin—by proving that a child may still breathe whilst in the maternal passages. He believes that the act of inspiration arises from the sudden diminution of the placental space, and from the placental blood in the umbilical veins being dammed up against the child's heart, causing a pause during the diastole, thereby increasing the amount of circulation in the lung; which, either singly or together, produce inspiration.

W. C. GRIGG, M.D.

COLIN ON THE ACTION OF THE HEART.—At a recent sitting of the Parisian Academy of Medicine, M. Colin (*Progrès Médicale*, April 25) sought to demonstrate, with the aid of anatomical preparations, that in man and the higher animals, the auricular systole precedes the ventricular in the action of the heart, just as it occurs in the lower animals. He asserted that conviction of this fact may be obtained by taking certain precautions in experimenting on the higher animals. If the animal be carefully bled, to avoid disturbance of the cardiac circulation, and if artificial respiration be properly kept up, it will be clearly seen that the contraction of the heart begins at the auricles. The speaker undertook to perform and show the experiment whenever wished to do so.

M. Bouillaud opposed M. Colin's theory. He passed in review all the researches which had been made since the time of Harvey, and cited specially those of Beau and of Haller; all had arrived at the indisputable and well-established conclusion that, in man and the higher animals, the contraction of the heart commences at the ventricles; consequently the ventricular systole precedes the auricular.

SURGERY.

WATSON ON EXCISION OF THE ANTERIOR TARSUS AND BASE OF THE METATARSUS.—Dr. P. H. Watson, Senior Surgeon to the Edinburgh Royal Infirmary, describes this operation in the *Edinburgh Monthly Journal*, May, 1874. The subject of the operation had suffered for some time from subacute disease, evidently confined between the base of the metatarsus in front, and the astragalus and os calcis behind. Conservative treatment had failed to cure the patient; and as amputation of the foot appeared not to be justifiable in the then condition of the parts, Dr. Watson determined to excise that part of the skeleton of the foot which is bounded by Chopart's line of amputation behind, and Hey's in front; in other words, to remove the scaphoid, cuboid, and cuneiform bones, with the bases of the metatarsal bones. Although in this way all the disease might be removed, the question remained whether the parts thus left would consolidate soundly, or whether the reconstructed foot would be either seemly or useful. Dr. Watson found but little encouragement from the appearances presented by a tentative operation upon the dead subject; nevertheless, the experience of many cases of partial excision of the bones of the foot inclined him to hope for a better result for the excision of the tarsus in the living patient, than the appearances in the cadaver seemed to suggest. He believed, also, that the preservation of the plantar fascia, and of the tendinous structures in the sole of the foot, would largely obviate the rotatory tendency observed in the astragalus and os calcis after Chopart's operation. The risk of a return of the disease in these two bones, simply because they constituted a portion of the tarsus in which the disease had originally commenced, Dr. Watson looks upon as a speculative objection, whose untrustworthy character has been established by the good results of excision of single bones of the tarsus in the hands of many surgeons.

In order to perform the operation, incisions were made on the outer and inner sides of the foot, between three and four inches in length; that on the outer side extended from the centre of the plantar margin of the os calcis as far as the middle of the metatarsal bone of the little toe; that on the inner side, from the neck of the astragalus to the middle of the metatarsal bone of the great toe. The soft parts were then carefully dissected off the dorsal and plantar surfaces of the tarsus, from the outer and inner wounds. With a probe-pointed bistoury carried across the line of the articulation, first upon the dorsal and then upon the plantar surface, a separation was effected between the bones in Chopart's line. Then the shafts of the metatarsal bones were divided from below upwards with a key-hole saw; one handle of a pair of bone-forceps being inserted between the bones and dorsal soft parts, to protect the latter from injury. The large gap was now firmly filled with pads of lint; the dressing was left for forty-eight hours, and then fresh applied. This mode of dressing was continued for six weeks, and then superficial dressings were applied. Support was given externally by lateral splints of gutta-percha, and at a later period of treatment the arch of the foot was preserved by means of a suitably shaped gutta-percha pad. Six months after the operation the patient walked smartly and well; and quite recently, after an interval of nearly four years,

he walked almost without defect. Dr. Watson has since operated in an exactly similar manner in five other cases; in only one of the six cases had he to resort to further operative interference. This was in a very debilitated subject; the system of dressing the whole cavity of the wound was not carried out; the lines of incision closed, the matter began to bag in the deep parts of the wound, and amputation at the ankle-joint was resorted to; but nothing was afterwards discovered which would have prevented sound cicatrization, had the proper mode of treatment been carried out.

[The Reporter looks upon Dr. Watson's new operation as furnishing a very valuable contribution to the surgery of the foot. It is valuable not only in itself, but for showing how unnecessary it is to sacrifice the entire foot even for extensive tarsal disease. Dr. Watson in a recent case excised all the tarsal bones, except the os calcis, together with the ends of the tibia and fibula. At the time when he spoke, the patient was doing well.—*Rep.*]

WILLIAM MAC CORMAC.

FLAGG ON THE ACTION OF CHEMICAL SUBSTANCES ON THE TEETH.—Dr. J. Foster Flagg (*Dental Cosmos*, April, 1874) directs attention to the difference between the ordinary chemical action of acids upon such salts and organic tissue as compose tooth-structure, and that action which results in caries. Frequent and long-continued experimentation has failed, in almost every instance, to produce any result which could be considered as analogous to caries; and when, in isolated instances, teeth have been subjected to influences, either accidentally or designedly, which have proved adequate to the induction of a semblance of this disease, it has been found that either the concomitant of galvanism in some form might easily be indicated, or that microscopic research has proved the existence of such pathological conditions structurally as would indicate decided local predisposition to decay, if even the incipency of actual caries had not been announced by decided 'tubular consolidation.' This latter has been invariably found in the comparatively limited number of examinations of this condition which he has been able to make.

In connection with all the various published results of experiments as to the effect upon teeth of an extended list of so-called injurious articles, embracing the many acids which are in daily use, such as acetic, citric, tartaric, malic, lactic, etc., together with sugar, meats, etc., we remark only the effects noted, day after day, of enamel so altered in appearance as to have lost its brilliancy, or at length so altered in structure as to be easily scraped away with the finger-nail, or again, of dentine and cementum so softened as to be cut or even bent; and yet no particular mention is made of the fact that these results were unlike caries in every particular.

Dr. Flagg has found repeatedly the most beneficial effects produced by the administration of medicines which, used locally in the seemingly accepted method of experiment, would be disastrous in the extreme; for example, nitro-muriatic acid will be recognised as eminently destructive of tooth-tissue. He has not seen a case of dental caries which he could attribute to the use of any acid medicine, while he has again and again seen remarkably prompt cessation of dental tenderness and tendency to caries, resulting from local weakness of tooth-structure consequent upon long-continued biliary difficulty, from

the administration of fifteen to twenty drops of nitro-muriatic acid daily.

It has for many years been accepted by observant dental practitioners that teeth are injured, to a certain extent, by the long-continued use of acid medicines; but it has also been noticed that the injury is general, that enamel suffers most of all dental tissues, that it loses its brilliancy and density of structure. The injury is not, he says, prevented by taking the medicine through a glass tube. He has taught that such injurious action as was liable to ensue from acid medicaments should be prevented by rinsing the mouth thoroughly, immediately after swallowing the medicine, with water, to which had been added a few drops of solution of ammonia, or a small quantity of bicarbonate of soda.

Solutions of alum are injurious in a general way only; acting more or less severely, according to frequency and continuance of applications and strength of the solutions; these roughen and soften the enamel, and necessarily accelerate the progress of decay in already formed cavities, but never seem to cause decay of the teeth in the circumscribed and localised manner which pertains to dental caries.

APPLIED PHARMACY.

UMNEY ON THE PREPARATION OF PEPSIN.—

Mr. Umney, in commenting (*Pharmaceutical Journal*, April 4, p. 792) upon the pepsin now made official in the Addition to the *Pharmacopœia*, says that it is imperative that the directions as to washing be strictly adhered to; and profiting by a failure he experienced, he would say that the scraping even of the stomach is a matter of importance. A material point seems to be the sufficiently light scraping, in order that the fatty matter be not removed with the viscid pulp.

WAYNE ON THE LEAVES OF THE CASTOR-OIL PLANT.—Having noticed a crystalline deposit embedded in the chlorophyll that separated during the preparation of a fluid extract of the leaves of *Ricinus communis*, which is used by some physicians in the United States as a galactagogue agent, Professor Wayne removed a portion for examination, and found the crystals to be nitrate of potassium (*American Journal of Pharmacy*, March, p. 97). This would appear to be evidence that the salt exists as such in the leaves of the plant—a supposition that is confirmed by the fact that the leaves and stems burn with scintillation and decrepitation almost like nitre paper. Pursuing the subject, he submitted the leaves to a careful analysis for the presence of a proximate principle. The analysis failed to show the presence of any substance having the properties of an alkaloid, but proved that they did contain a proximate principle crystallising in square prisms and tables. This was obtained by percolating the leaves with dilute alcohol, driving off the alcohol in a water-bath, to separate the chlorophyll and resin, and filtering. The tannic acid and much of the colouring matter were removed from the filtrate by repeated shakings with moist hydrated oxide of lead; the solution was then filtered, and evaporated to a syrupy existence. This extract was exhausted with alcohol, and the alcoholic solution, upon evaporating spontaneously, yielded a pale yellow crystalline substance that, upon being redissolved in alcohol and

treated with animal charcoal, formed, upon a fresh evaporation, colourless crystals, prismatic and tabular in form. Submitted to suitable tests, they were found to be identical with the substance obtained by Professor Tuson from castor-oil seeds, and named by him 'ricinin.' Experiment led Professor Wayne to conclude that ricinin has no claim to be considered an alkaloid, as it has no action upon litmus paper, and is not precipitated by iodohydrargyrate of potassium. Yet it contains nitrogen, as is shown by the evolution of ammonia when it is heated with potash. It is soluble in alcohol and water, and has a bitter taste, resembling that of wild cherry bark. The portion of the extract insoluble in alcohol was tested for glucose, but none was found.

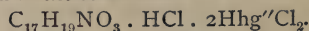
Analysis showed that this peculiar proximate principle exists in all parts of the plant; also, that the leaves are very rich in nitrate of potash, and in alkalies and phosphoric acid. 500 grains of the leaves yielded 120 grains of ash, which was found to have the following percentage composition.

| | |
|------------------|-------|
| Lime | 33.40 |
| Magnesia | 6.20 |
| Potash | 27.15 |
| Soda | 2.12 |
| Peroxide of iron | .70 |
| Phosphoric acid | 6.68 |
| Sulphuric acid | 2.90 |
| Chlorine | 1.63 |
| Carbonic acid | 16.20 |
| Silica and sand | 2.41 |
| Loss | .61 |

100.00

WELLBORN ON AN ADULTERATION OF PUTTY POWDER.—Mr. G. Wellborn states (*Pharmaceutical Journal*, March 1, p. 750) that having been led to suspect an adulteration in a sample of oxide of tin (putty powder), he analysed a portion of it, and found it to contain a considerable quantity of oxide of lead. Considering that oxide of lead, from its comparatively low price, might be a frequent adulterant of oxide of tin, he obtained samples from two other sources, and submitted 20 grains of each to analysis. The quantity of oxide of tin was the same in the three samples, namely, 5 grains; the remainder being made up with oxide of lead.

MARTINDALE ON CHLOROMERCURATE OF MORPHIA.—At a recent meeting of the Pharmaceutical Society (*Pharmaceutical Journal*, April 11, p. 809), Mr. Martindale mentioned a difficulty that he had met with in dispensing a solution for hypodermic injection, consisting of hydrargyri bichloridi gr. viij, morphiae hydrochloratis gr. iv, aquæ destillatæ 3j. The two salts were added to a little water in a test-tube, and dissolved by the aid of heat. On filtering and cooling, although more than four times the quantity of water was ordered that would have been necessary to hold either salt in solution separately, there was a large deposit of silky acicular crystals, due to the formation of a double salt of mercury and morphia. This is described by Watts as the chloromercurate of morphia, and has the composition represented in the formula—



There are nearly corresponding iodo- and bromo-compounds of mercury and morphia. With the prescriber's consent, a mixture of seven parts of water with five of glycerine was substituted, but even out of this the salt crystallised in a few days.

The solution had originally been ordered by Mr. Berkeley Hill, for the purpose of trying whether the

addition of morphia would lessen the pain and inconvenience which attends the subcutaneous injection of an ordinary solution of perchloride of mercury. This, however, was found not to be the case. In its place, therefore, was prepared a solution of the chloro-albuminate of mercury, from the formula of Mr. Staub (LONDON MEDICAL RECORD, vol. i. p. 278), but more concentrated. In this solution, excess of chloride of sodium and chloride of ammonium are dissolved with the perchloride of mercury, and added to a mixture of white of egg and water, the alkaline chlorides being said to prevent the combination of the mercury salt with the albumen. After a time, however, the solution became curdy—possibly because of its concentration—and Mr. Hill left off using it; but he informed Mr. Martindale that it caused less pain, and entered more rapidly into the circulation than the simple solution of perchloride of mercury. Mr. Hill's notes on the use of the two solutions are appended to the original paper.

HOLMES ON KOEGOED, A HOTTENTOT DRUG.—At a meeting of the British Pharmaceutical Conference at Brighton, Mr. Keyworth brought forward a vegetable substance named koegoed (literally cow-good), an infusion of which is administered by the Hottentots to cattle, and taken by themselves, when suffering from inflammation of the bowels through drinking brackish water. This substance has been identified by Mr. E. M. Holmes (*Pharm. Journ.*, April 11, 810) as the roots and procumbent stems of *Mesembryanthemum tortuosum*, a plant belonging to the natural order Ficoideæ. Besides being used as above stated it is chewed by the Hottentots as an intoxicating agent, and appears to possess narcotic properties which deserve further investigation.

Three other species of *Mesembryanthemum* are used medicinally by the Hottentots; but these have leaves of a different shape from those of koegoed, which are oblong-ovate, those of *M. acinaciforme* and *M. edule* being scimitar-shaped, and those of *M. crystallinum*—well known in this country as the ice-plant—being broadly ovate and amplexicaul. The expressed juice of the first two of the above mentioned species is used extensively in South Africa in dysentery, as a gargle in malignant sore throat, and as a lotion for burns and scalds.

HOLMES ON A SPURIOUS CASCARILLA.—Some cascarilla has recently been imported from Nassau, in the Bahama Islands, containing an admixture of spurious bark. This false cascarilla has been examined and described by Mr. Holmes (*Pharm. Journ.*, April 11, p. 810). At first sight it strongly resembles cascarilla; but the periderm or outer layer of bark does not readily peel off, and is of a fawn colour, not white. On the inner surface the bark is of a reddish tint, and is furnished with a number of straight, closely packed raised lines, which give it a striated appearance, the inner surface of cascarilla being smooth. The taste is not aromatic, but astringent, and almost without bitterness. The colour is also of a more reddish tint than that of cascarilla. It yields an infusion and tincture darker in colour than those of cascarilla. Treated with tincture of galls, the tincture becomes slightly cloudy, and with tincture of perchloride of iron it becomes almost black; but tincture of cascarilla is not altered in appearance by either of these reagents.

From the general appearance and microscopical structure of the bark, it seems probable that it may

belong to a plant of the same genus as the cascarilla, and Mr. Holmes is inclined to attribute it to *Croton lucidum*, L. The bark of this plant is said to be used by the negroes of New Providence to mix with true cascarilla bark, under the idea that it improves the curative powers of the latter. It is known by the name of 'false sweetwood bark,' sweetwood being the name applied by them to the true cascarilla.

HOLMES ON AN ADULTERATION OF ARNICA ROOT.—Mr. Holmes reports (*Pharm. Journ.*, April 11, p. 810) that he has recently examined two samples of 'arnica root' received from Germany, one of which contained only 50 per cent. of the genuine root, and the other only 10 per cent. In both samples there were two or three kinds of roots; but the chief adulterant in both cases was identified as the root of *Geum urbanum*, an indigenous plant well known to herbalists in this country under the name of Avens, or Herb Bennet. The spurious drug may be at once recognised by the fact that it is not a rhizome, or prostrate stem, like arnica, but a root which evidently descends vertically into the soil, as it is surrounded on all sides by rootlets. In size it varies from that of arnica to five or six times as large, in some pieces appearing præmorse, and in others suddenly narrowed and elongated. The cortical portion resembles that of arnica in colour, but the medullium, or central portion, is of a purple tint, and presents a discoid appearance, two characters met with in but few roots. When the root is soaked in water the purplish medullium swells up and loses its discoid appearance. The odour of arnica is distinctive, and the taste has a peculiar acidity, and an after flavour which may be likened to the odour of rancid coconut oil, whilst the taste of *Geum urbanum* is astringent and somewhat aromatic, faintly resembling that of cloves.

HOLMES ON AN ADULTERATION OF BELLADONNA ROOT.—A sample of belladonna root imported from Germany has been found by Mr. Holmes (*Pharm. Journ.*, April 11, p. 811) to contain 50 per cent. of a malvaceous root, which he believes to be that of *Malva sylvestris*. The adulteration is an important one, as it would in this proportion reduce the strength of belladonna preparations one-half; but it is easily detected. Externally the two roots are very much alike, especially when the belladonna is in small pieces; but internally the structure and appearance are very different, belladonna having a very large medullium and small cortical portion, while in the mallow the two are nearly equal. Also the fracture of belladonna is short, while in the mallow it is distinctly fibrous.

B. H. PAUL, Ph.D.

OPHTHALMOLOGY AND OTOLOGY.

WARLOMONT ON A MODIFICATION OF A TREPHINE FOR THE CORNEA, OR FOR USE AS AN ARTIFICIAL LEECH.—Dr. Warlomont (*Annales d'Oculistique*, July and August, 1873) says that trephining the eyeball, so called by Wecker (*Annales d'Oculistique*, 1873, vol. lxi.), is an operation by which he removes a circular portion of the cornea in cases of partial or complete staphyloma, in order, by the gradual formation of connective tissue, to reduce

its curvature, or to establish a corneal fistula in cases of complete leucoma. Mr. Bowman has carried out the same idea with a view of lessening the cone in conical cornea, his trephine consisting of a series of cylinders of the size of goose-quills, with cutting edges. The instrument is rotated by the thumb and finger, and the small circle of cornea is removed by the forceps.

Though admitting that M. Wecker's instrument and that of Mr. Bowman both answer their purpose, M. Warlomont considers that of M. Wecker to be too complicated and far too costly; hence his suggestion of what he considers a more simple instrument, which consists of a circular blade rotated by a spring, easily worked by the pressure of the finger upon a button at the upper extremity.

M. Warlomont believes that this simple instrument may take the place now occupied by the various kinds of artificial leech.

CRITCHETT ON THE TREATMENT OF CATARACT PREVIOUSLY TO OPERATION.—In the *Annales d'Oculistique* (Sept. and Oct., 1873) are some valuable notes on the question, one not very fully treated of in standard works: Is it the duty of the surgeon to warn his patient of the nature of the disease when it has but barely commenced, and when a long and anxious time must elapse before any operation can be attempted? Mr. Critchett, even at the risk of appearing to overlook the true nature of the case, would be reticent, knowing how the thought of impending blindness from cataract is dreaded.

Another question which has to be met is, whether there is any cure, any means of removal by medicine or otherwise, short of an operation. It is at this time that patients with cataracts are apt to fall into the power of quacks and charlatans. Though the answer to this question must be a decided negative, yet there is much that may be done to relieve the present discomfort; for instance, the amount of light may be regulated by the employment of proper glasses, and by the continued use of atropine in solution. It will be well too that the patient should be seen at regular intervals, in case the commencing cataract may be the precursor of some more serious condition, such as glaucoma; and by degrees the knowledge that the increasing dimness of vision is due to cataract and to nothing worse, may in itself be a reason for looking hopefully to the future.

The time for operative interference has arrived when—

1. The cataract is completely matured;
2. The lens of the second eye is also so opaque that the patient is on the point of having to relinquish his occupation.

The social position of the patient must be borne in mind; but the second condition is to be insisted upon, because surgeons of the old school used to delay till blindness was complete, and there is a tendency amongst some surgeons of the present day to adopt the other extreme and to attack every single cataract at once.

There are some cases of cataract which will, Mr. Critchett thinks, always give rise to difference of opinion, and which indeed are embarrassing; viz., when there is very great impairment of vision while the cataract is yet far from maturity. Is the surgeon to operate upon an immature lens? or is he to hasten the maturity by some operation? The latter course Mr. Critchett believes to be full of danger; and, except in cases where the cortical layers

of the lens are much involved it is, he thinks, the duty of the surgeon and in the patient's interest to wait. In the cases where one is cataractous and the other quite sound, Mr. Critchett thinks that in young subjects it is well to operate, but in elderly patients, while one eye retains its perfect power, the cataract in the other should not be interfered with.

BOWATER J. VERNON.

PIERMÉ ON PROLAPSE OF THE VITREOUS HUMOUR.—*Le Mouvement Médical* contains a review of a work on this subject, which is a most interesting and important one for all who have to perform any of the operations for cataract. In the days when the old operation by flap was in vogue, and even in later times when as yet von Gräfe's method of extraction had not been modified as regards its line of section, prolapse and loss of vitreous humour was a very common occurrence. Now that the section is no longer made in such dangerous proximity to the zonula, its occurrence has become more rare, but is none the less of very serious moment.

On the anatomical changes which take place immediately after loss of vitreous humour, and on the question of its redevelopment, authorities give but very little information. M. Pierné has studied the subject by the light of physiological experiments upon animals, as well as from its clinical and surgical aspect, and his results are embodied in four chapters. The first chapter is devoted to the normal anatomy of the vitreous humour. The second gives an account of his experiments performed upon rabbits. The third is devoted to clinical observations; and, in the fourth, are summed up the conclusions derived from the preceding three.

The chapter on the anatomy of the vitreous body apparently calls for no remark on the part of the reviewer, except one of regret, that nearly all the information which could be obtained had been drawn from the labours of foreigners.

The results of the experiments made upon the eyes of rabbits showed that, when a small quantity of the vitreous humour had been removed by means of a small syringe, the operation was a very simple one, and was attended by no evil consequences, no hæmorrhage, nor any inflammation of the coats of the eye. Thirteen such experiments are recorded, and in all, the eye which was soft and somewhat shrunken after the operation, in a few hours had regained its normal tension and appearance. The author asks whether, in these cases, the vitreous humour reproduced is identically the same, or, merely a new substance, more or less resembling that which had been lost; and he feels inclined to admit the reproduction of a veritable vitreous humour, and for the reason that the fluid removed from the vitreous chamber is the structureless and albuminous fluid which is again speedily reproduced from the surrounding blood-vessels. M. Pierné even admits a renewal to a certain amount of the nucleated cells described by Iwanoff. Surgical experience shows that a man may lose vitreous humour in consequence of a wound of the sclerotic, and in a short time the eye may regain its normal appearance and may retain its sight; and it has been the experience at some time or other of most surgeons, that on the day following a cataract operation, during which vitreous humour has been lost, the tension of the eye has been completely restored. It is, however, probable, that such eyes are never so sound or so well able to withstand disease, as those which have passed

through the operation without accident. The case is far otherwise, however, when the loss of vitreous humour has been considerable; there is then the risk of choroidal or retinal hæmorrhage, with detachment of the retina perhaps, or, in the instance of a cataract extraction, the fragments of the cortical substance which are retained in the eye may become the exciting cause of proliferative changes, and take the shape of suppuration, or of membranous opacities which must prevent useful vision.

The conclusions arrived at by M. Pierné are as follows.

1. The vitreous humour is reformed readily and speedily both in the eyes of man and of the lower animals.

2. Prolapse of the vitreous humour is of greater danger when the wound is large, and naturally the gravity of the accident is greater in proportion to the amount of the loss.

3. The vitreous humour may become the seat of an inflammation in consequence of a wound, and this inflammation may terminate by resolution, by suppuration, or may become chronic.

4. The immediate evil consequences of prolapse, generally have their origin in the choroid; and the ultimate result is atrophy of the eyeball.

BOWATER J. VERNON.

ROBERTSON ON A CORNEAL WART.—Dr. C. A. Robertson relates the following case in the *Philadelphia Medical Times* for February 28.

The patient, named James Taylor, about seventy years old, had had for several years a dermoid growth, which started on the outer and lower part of the right eyeball, and early showed a tendency to intrude upon the transparent cornea. At an early period of the complaint Dr. Robertson attempted to destroy the wart, by cutting off its surface and applying chromic acid. This treatment not proving successful, or for some other cause, he ceased his visits, and Dr. Robertson lost sight of him entirely until he presented himself at St. Peter's Hospital in Albany, in October last.

In the meantime he had been told that the growth was dangerous, and that the only thing to be done was to remove the eyeball.

Upon examination, Dr. Robertson found that the wart, in its growth, entirely covered the cornea, except a very narrow tract at the upper inner margin. All sense of vision was obliterated. The wart was of a roundish form, and a whitish-gray colour. To the touch, it was soft and unctuous. In structure it was composed of papillæ, which were separable almost to the base; and near the lower edge these papillæ stood up in coarse filaments, or little crowded columns, almost a quarter of an inch high. From these, they were graduated down until they were nearly on a level with the cornea at the region of most recent invasion.

In order effectually to rid the patient of this wart, the eyelids were held apart with the ordinary silver-wire speculum, and then, with delicate scissors curved on the flat, all the coarser portions which it was practicable to cut were removed, leaving on the eye only the base of the structure as a raw surface. Then, taking a bent lance-shaped knife (*iridectome*), Dr. Robertson carefully insinuated its edges under the upper sessile border of the excrescence, and, by gentle manipulation, teased away the adventitious growth from its connection with the surface of the cornea. When the operation was terminated, the

colour of the iris and the black pupil were visible, and the patient remarked that he could see objects.

Very little reaction followed. The cornea steadily improved in clearness as the natural superficial or epithelial layer was reproduced, and within a very few weeks the sight became as good as in the other eye, in which it was perfect. Four months after the operation, there was no vestige of the old trouble to be seen, and the cure appeared to be perfect.

EPIDEMIOLOGY.

HALL ON SMALL-POX IN LEEDS.—Mr. F. Hall's report of the Leeds Small-Pox Hospital, for the year ending August 15, 1873, is very short, wholly to the point, and rich in evidence of the value of efficient vaccination. Mr. Hall treated during the year 155 cases, 130 of which were of persons under thirty years of age. Unlike many reporters, Mr. Hall notes the importance of *quality* in vaccination, and the results of his observations on this point are of great interest and importance. Of 71 well-vaccinated persons under his care not one died, whereas of 57 badly vaccinated persons eight died, and of 27 persons not vaccinated at all, 18 died. Mr. Hall recommends 'a systematic inspection by competent persons of public and private schools, to ascertain by the kind of scar visible, whether the operation has been effectually performed with the view of course of having it repeated when necessary.'

The substance of Mr. Hall's report is contained in the following tables, which we extract entire; remarking by the way, that we think it would have been an improvement, if the classification adopted in Table 5 had been also adopted in Table 4.

No. 4.—VACCINATION RETURNS.

| | No. | Death. | Per-centage. |
|--|-----|--------|--------------|
| With well-marked characteristic vaccination scars | 71 | — | — |
| Indistinct marks of vaccination . | 29 | 1 | 3'4 |
| Said to have been vaccinated, but no marks visible | 28 | 7 | 25'0 |
| Not vaccinated | 27 | 18 | 66'6 |
| | 155 | 26 | 16'7 |
| By classifying together those with vaccination marks . . | 100 | 1 | 1'0 |
| Without vaccination marks . | 55 | 25 | 45'4 |

No. 5.—NUMBER OF DAYS UNDER TREATMENT.

| | No. | Days. | Average. |
|--|-----|-------|----------|
| With three well-marked vaccination scars | 2 | 22 | 11 |
| With two well-marked vaccination scars | 55 | 1,014 | 18 |
| With one well-marked vaccination scar | 14 | 325 | 23 |
| With indistinct marks of vaccination | 28 | 733 | 26 |
| Said to have been vaccinated, but no marks visible . . | 21 | 736 | 35 |
| Not vaccinated | 9 | 362 | 40 |
| | 99 | 2,094 | 21 |
| With vaccination marks . . | 30 | 1,098 | 36 |
| Without vaccination marks . | | | |

ALEX. COLLIE, M.D.

NEW INVENTIONS.

EXTRAIT DE VIANDE LIEBIG DE LA PLATA.

Since Baron Liebig first introduced beef-essence to the public as an accessible and useful article of food, there have been several candidates in the market basing their claims to favour on varieties in the mode of preparation and in advantages of certain localities, &c. The most recent of these are MM. Benite & Co., of Buenos Ayres, who introduce the 'Extrait de Viande de la Plata' with special recommendations of its purity, superior quality, and cheapness. We have not investigated the relative cheapness, but, in *quality*, this extract seems superior to those which we have been using. The best test is the one that is readiest. Take an equal weight ($\frac{3}{4}$) of this and of the better known extracts, and mix sufficient hot water to make three-quarters of a pint of soup with each; the 'La Plata' extract will be found, though of lighter colour, to be much more aromatic and to have less of the 'burnt' taste which has raised a formidable objection to the general adoption of these meat-extracts.

If, however, the condiments that are recommended in the 'Buenos Ayres' programme be added, viz.: plenty of salt, onions and carrots, or celery, and if the cook will only take the same trouble that she would with soup made from 'fresh' meat, such a savoury mess will be produced that even the most delicate appetite will be tempted, and at a cost not exceeding a penny a bowl. It has of late been the custom to decry extracts of meat, more especially in Sweden, where the fact of their minimum nutritive value has been insisted upon; but MM. Benite & Co. have taken the opinion of the most distinguished chemists at Kiel, Berlin, Pisa, Breslau, Hamburg, Brussels, &c., and these have certified that the extract in question is in all respects equal to the best-known extracts. After an extensive trial in hospital practice, we are persuaded that the values of extract of meat are great, and that the objections to it are largely imaginary. In the first place, it is cheap and handy, and does not require great skill or time in preparation; next, it is a good vehicle for bread, whilst at the same time affording warmth; and lastly, it is aromatic, and thereby stimulates the appetite to take other kinds of food. The objections on the other hand are fanciful; for to many minds the fact of its cheapness is one of its main drawbacks—a remark that applies equally to Australian beef and mutton—it is thought to be procured from an inferior kind of cattle, whereas the very opposite is really the case. To say that it has no nutritive power is to assert what is at any rate not proved, and is to go against the well-elaborated scientific deductions of the original proposer, and the experience of those who have to deal with the question of the satisfactory feeding of large bodies of people. The 'La Plata' extract yields a broth light in colour, fragrant and agreeable, free from the bitter taste which, it must be confessed, spoils some of the extracts that we have seen; and, if chemists may be trusted, is very nutritive in quality. The 'La Plata' extract was first introduced in 1869, and was extensively used by the 'Red Cross' Committee in the war of 1870-71, since which time its sale has been very extensive. As a basin of soup for lunch, the best way is to make a decoction of carrots, onions, celery, &c., in water, and at the time of serving,

add a small teaspoonful of the extract to each pint of fluid, taking care to put in plenty of salt; or the vegetables may be replaced by sago, vermicelli, tapioca, &c. The proprietors recommend that fresh bones, which cannot otherwise be utilised, be boiled with vegetables as above named, and a portion of 'extract' added, the result being eminently satisfactory. It is sold at all the principal grocers' shops and purveyors, in pots of various sizes, and each pot is verified by the signatures of MM. Depaire and Joret, professors at the University of Brussels and the Military School of Belgium. A kind of chocolate is also prepared from the extract, which is portable, and of great use to pedestrians, and especially to mountain-climbers.

Though firmly convinced from practical experience of the virtues of 'Beef-Extract,' and 'Canadian Pork,' it is almost in despair that we again ask the public to give them a fair trial, so dear to an Englishman is the sentiment (and what more is it?) of the 'Roast Beef of Old England.' A night journey in a Rotterdam steamer is enough to dispel all ideas of what is temptingly called 'prime English beef;' and when a company ensures—and it may be verified by any visitor—that it has the very best cattle, fed on pastures belonging to the establishment, and of large extent, and therefore able advantageously to offer an article which on the simplest principles of economy is seen to carry with it the credentials of purity and cheapness, why, in the name of common sense, do not the lower and middle classes at any rate, if not the upper, to whom lavish expenditure may be no object, economise their butcher's bills, and support a line of commerce whose resources are almost unlimited, and as yet only imperfectly developed?

T. CLAYE SHAW, M.D.

Dr. Alexander Collie, of the Metropolitan Asylum District, Fever Asylum, at Homerton, writes as follows: 'The extract of meat makes an excellent soup, superior in our opinion to the others, especially in flavour. It was very much liked by our patients, which was not the case with the other extracts which we have tried.'

Dr. J. Crichton Browne, of the West Riding Asylum, Wakefield, says: 'I have carefully examined the specimen of "Extrait de Viande de la Plata" forwarded to me, and have formed a very favourable opinion of its quality. It is of a dark brown colour, and has a pleasant aroma. Four drachms of it, mixed with fifteen ounces of boiling water, makes a strong beef-tea of agreeable odour and taste, darker in colour than that procured by mixing the same quantity of any other extract which I have seen with the same amount of water, and entirely free from any saltiness. Administered to invalids, this extract is taken without objection, and is said to be palatable. As far as I can judge from the use of a small quantity, it is fully as nourishing and supporting as Tooth's extract, which we have hitherto been in the habit of using in this hospital.'

FIELD'S PULMONIC CANDLES.

The medicated candles, introduced by Messrs. Field and Co., have been widely and favourably noticed. The notion of mingling benzoin, storax, and other balsams in the material of a well made candle, and thus diffusing medicated vapours through

a chamber, is a very ingenious and practical one. It admits, no doubt, of further development, and medical men will be able probably, by using the present form of candle, to devise or suggest to the makers other formulæ not less useful. The most obvious use of the medicated candles is, of course, for the aerial treatment of respiratory diseases.

MISCELLANY.

THE AUSTRIAN Minister of the Interior has sanctioned the establishment of a special department of Psychological Medicine in the General Hospital of Vienna.

THE HYGIENE OF INFANCY.—The Medico-Chirurgical Faculty of Parma proposes 'The Physical Hygiene special to Infancy' as the subject for the first competition for the biennial prize (a gold medal of the value of 12*l.*), founded by Professor Speranza.

A CONGRESS of Asylum Physicians of the South-west of Germany was held on the 2nd and 3rd instant at Hephenheim. It was attended by eighty-four members. Communications were read by Professors Eckhard of Giessen, Friedreich, Moos, and Erb of Heidelberg, and Drs. Emminghaus, Otto, Hirn, and Bandorf.

A LECTURE TO LADIES.—A very tragic occurrence took place recently at Bucharest. Dr. Bernath, the principal of a public laboratory in that city, was giving a popular lecture on chemistry. Among his hearers was a Madame Davila, a lady of good family and intimately acquainted with the professor. The lady was taken ill in the course of the lecture, and the doctor prepared a draught for her in which he intended to mix some quinine, but by accident used strychnine instead. The unfortunate victim was taken out into the street, and died almost instantly.

THE statistics of the special hospital of Suleimanie give the following figures for the years 1820 to 1864.

During this period, 673 insane patients were received in that establishment—532 males and 141 females. The Caucasian race was represented by 566; the Ethiopian by 81; the Mongolian, by 26; 116 patients could read and write; 50 could read only; and 501 were totally illiterate. In regard to etiology, religious fanaticism was considered to be the cause in 254 cases; 7 cases were attributed to a religious idea of another kind, which the author diagnoses under the denomination of religious scruples. The abuse of opium counted 20 victims; hasheesh, 94; alcoholic drinks, 88; domestic troubles, 127; disappointments of various kinds, 15; hereditary, 26; insolation, 61.

CHOLERA has appeared at Rzepisch (Upper Glogau) in Silesia. On the 2nd instant several persons were attacked.

THE Faculty of Medicine of the University of Kiev have decided on establishing a dispensary for accouchements and the diseases of women.

REGISTRATION OF DEATHS.—A good story illustrative of the necessity of some such officer as the Médecin Vêrificateur for this country was told to the Royal Sanitary Commission by Dr. Burke, Deputy Registrar-General of Ireland. He mentioned the case of a physician who, having been in attendance on a person showing symptoms of acute illness, was informed of his death as having occurred on the previous day. Calling, however, casually at the house next day, he was shown into a room where, to the confusion of all concerned, the dead man was discovered alive and hearty. A death-certificate is sometimes an article of great commercial value, and very extraordinary ruses are sometimes employed to obtain it. Nor is crime less subtle than fraud in its efforts to obtain the certificate which silences all questions and opens the door of the cemetery.

ANTIDOTE AGAINST RABIES.—Dr. Jitzky lately communicated a very interesting circumstance to the Imperial Society of Wilna, in Russia, respecting a very vicious dog, who had a habit of rending vipers (*Coleuber verus*) into pieces, and whose muzzle and neck were covered with tumours produced by the bites of these reptiles. This dog was bitten by a rabid dog, which had caused death from hydrophobia to several horned animals and a young dog. The owner of the first-mentioned dog, who valued it, kept it alive, but watched it continually, so as to destroy it on the first appearance of rabies. No symptom of the disease, however, appeared; and to the great astonishment of Dr. Jitzky and of its owner, the dog continued in perfect health. But what particularly attracted Dr. Jitzky's notice was, that a woman living in the same locality was first bitten by a viper, and subsequently by a mad dog, and hydrophobia did not ensue. This led him to ask if there were not an antagonism between the venom of the viper and that of rabies. If this be admitted, it would be possible to preserve young dogs from hydrophobia, by inoculating them with the venom of the viper. It is reserved for future experimentalists to decide the reason of the singular coincidence which occurred in the facts above cited. We also learn from the *Gazette le Kieulanine*, no. 38, 1874, that amongst the remedies vaunted against rabies, and which are about equally effectual, the 'znakhars,' a kind of wizards in the south of Russia, employ the root of the black turbit (*Euphorbia palustris*).

AMERICAN MEN AND ANIMALS.—Dr. Brown-Sequard in a recent lecture in New York, announces the curious fact that animals in America can bear an injury better than the same species in Europe. He goes on to say: 'I have ascertained that it is so for man also. And this is why many medical writers in Europe consider that facts of this kind published here are mere inventions. There is a distrust among European physicians, because the former cannot understand how man in this country can survive terrible injuries which would be fatal to him in Europe. I would not say that the truth is absolutely respected in this country or anywhere else, but still there is no doubt that the facts which have been mentioned are perfectly true. Experimenting on a rabbit before a class in the University of New York, I had announced to them that pushing the instrument, as I was about to do, along the cord, would be quite enough to kill the animal immediately. Fortunately for me, I had said that death was due to the hæmorrhage accompanying the instrument, and not to the lack of the influence of the spinal cord. After pushing the instrument in for some distance I found the rabbit which had been operated upon eating a carrot. The class laughed more than you do now, and not at the rabbit, but at me. I could not understand at first what it was due to, and I then pushed the bar of iron its full length, or nearly one half the extent of the spinal cord; but the rabbit continued to eat its carrot. Fortunately for me and for science, I found that there was no hæmorrhage at all. I then took up the rabbit by its ears and showed that there was no bleeding, and explained in that way the persistence of life. What I had said therefore was verified by the fact that in Europe death takes place by hæmorrhage. This tendency to hæmorrhage in European animals is one of the differences between the animals of the two countries, and there are other important differences.'

NEW YORK SOCIETY OF NEUROLOGY AND ELECTROLOGY.—A society has lately been incorporated in New York, entitled 'The New York Society of Neurology and Electrology;' for the study of the anatomy, physiology, pathology, and therapeutics of the nervous system, and of electricity in its relations to physics, physiology and therapeutics. The society is to hold its meetings on the third Monday evening of every month, excepting the months of July, August, and September, and there are to be six standing committees; viz. on the Anatomy and Histology of the Nervous System; on the Physiology and Pathology of the Nervous System; on the Thera-

peutics of the Nervous System; on Psychology; on Electro-Physics and Electro-Physiology; and on Electro-Therapeutics. All papers, communications, cases, preparations, and apparatus, pertaining to their respective subjects are to be referred to these committees; and each committee is to make one annual report of the progress of its respective subject. The officers of the society for the current year are:—President, Dr. Meredith Clymer; Vice-President, Dr. Austin Flint; Recording Secretary and Treasurer, Dr. Carroll; Corresponding Secretary, Dr. Mason; Executive Council, Dr. Flint, Dr. Dalton, Dr. St. John Roosa, Dr. Loring, Dr. Beard. The society comprehends many corresponding members, amongst whom we note the names of Drs. Althaus, Anstie, Bastian, Claude Bernard, Crichton Browne, Bucknill, W. B. Carpenter, Lockhart Clarke, J. M. Charcot, E. Du Bois-Reymond, Duchenne de Boulogne, Sir Wm. Gull, Helmholtz, Hitzig, Hughlings Jackson, H. Maudsley, C. B. Radcliffe, Russell Reynolds, Schiff (Florence), Tripiet, Samuel Wilks, Virchow, Vulpian, and other eminent men.

MINERAL WATERS IN ALGERIA.—Among countries noted for their mineral waters, in respect of the number, variety, and hygienic properties of their springs, Algeria stands first. In most cases ruins in the immediate vicinity attest the fact of the old Romans having appreciated the curative qualities of the waters quite as much as the Arabs of the present day do. The principal of these springs are Amman Rhira, on the ruins of Aquæ Calide, famed in the time of the Roman emperors, the waters being very similar to those of Baden and Lucca; Hammam Meluan, about twenty-one miles from Algiers, the waters of which are highly saline as well as mineral, and are particularly efficacious in cases of rheumatism, gout, and skin diseases; the sulphurous springs of Hammam Berruagua, the temperature of which is about 81° Fahrenheit; the 'Queen Baths,' close to Oran, originally founded by Joanna, daughter of Isabella the Catholic (the grottoes adjoining the springs are in this case converted into *sudatoria* or hot rooms); and, lastly, the Hammam Meskutine (Aquæ Tibilitanæ), which are situated in the midst of a lovely entourage, and the waters of which attain a temperature of from 126° to 169°, and are peculiarly suited for the cure of diseases of the joints and skin affections.

ALLEGED REMEDIES FOR HYDROPHOBIA.—The asserted prevalence of hydrophobia at the present time is bringing forward the usual crop of nostrums for the cure of this hitherto incurable disease. Among them is one which is brought forward with more than the usual weight of evidence in its favour. Mr. Prince, of Tunbridge Wells gives in the *British Medical Journal*, the formula for a prophylactic against hydrophobia. In reference to this preparation he states that out of twenty persons who had been bitten by mad dogs, eighteen to whom he administered it felt no ill effects from the bite, whilst the remaining two who refused to take it died of hydrophobia. The same results, he alleges, occurred in the case of a number of cows and pigs who were bitten by a mad dog. Mr. Prince has purchased this formula, and very liberally places it at the service of the profession by publishing it in the *British Medical Journal*. The ingredients are as follows:—A small handful of tree-box, a small handful of toad-flax, three hands of foetid hellebore or setterwort, a small handful of primrose-roots. These are to be boiled in a quart of new milk down to a pint. The decoction is then to be strained, and, when cool, any skim is to be removed. The following are then to be added; Gascoigne powder, three drachms; and two drachms each of jalap and carbonate of iron. The handful each of box and toad-flax means that about three or four inches of the terminal branches, with the leaves on, of the box-tree, and as much of the stem of the toad-flax as possesses leaves and flowers are to be taken. This in weight of the dried herbs is, of box, one ounce, and of toad-flax six drachms. Three hands of the hellebore mean three entire leaves with the axil, which, when dried, weigh about two

scruples. The primrose roots are not essential, and have been omitted for some years. Mr. Prince suggests, however, that in place thereof the ground liverwort should be substituted. In a more tangible form, the formula should appear as follows.

R. Buxi sempervirentis 3j; antirrhini linariæ 5vj; hellebori foetidi 5ij; lichenis cinerei terrestris 3iij.

Powder the dry, or bruise the green, herbs in an iron mortar; put them into a quart of cold milk and boil down to a pint; strain while hot, skim when nearly cold, and then add pulv. Gascoigne 3iij; pulv. jalapæ, ferri carbon. sing. 5ij. M. One-third part of this mixture is to be taken on three consecutive mornings, fasting. The following directions are added: 'If working of them too much, make four of it for Christians, but for beasts three times as much. If the person is mad before taken in hand, mix the same quantity of powders as above in a teacup of new milk till a drink can be made. Bleed once or twice in two or three days after the drink is taken. If the sign be high, put in the same quantity of powders as above (in the drink); if low, not quite so much. Half of this draught is considered necessary for a child seven years old. If the wound be bad, apply a clove of garlick.' Hence, it appears to have been considered applicable even after symptoms of hydrophobia had commenced.

Of these ingredients box-tree and lichen can always be obtained; the toad-flax is not kept in store by herbalists, and, therefore, cannot be obtained in any quantity until the plant is again in flower. Gascoigne powder can be procured from any respectable chemist, and consists of certain proportions of crabs' claws, hartshorn shavings, and amber.

SMALL-POX AND VACCINATION.—A series of official documents have recently been published in Prussia on the epidemic of small-pox, which raged in that country during the years 1870–1872; and also on the question of vaccination. These documents likewise contain information regarding other countries, and are accompanied with tables; whence the following details are extracted. Out of a total mortality of 735,593 persons in Prussia during 1871, 59,839, or 8.13 per cent. died of small-pox. In 1870, 441 circles had been spared by the scourge, whilst in 1871 no more than two had escaped its ravages. In Berlin 6,478 persons died from small-pox from January 1, 1871, to July 1, 1872. According to the published tables, the number of mortal cases from small-pox before the introduction of vaccination, was from 8 to 20 per cent. of the general mortality; after the employment of the vaccine matter, the number was lowered to 0.5 per cent.; but in the recent epidemic it rose almost to the old level. In addition to the 59,838 deaths in Prussia in 1871 from small-pox there were more than 400,000 attacks of this malady. The report to which we refer insists on the necessity of vaccination, and even of compulsory revaccination. It also refers to the Transatlantic countries, and shows the ravages made by small-pox in China, India, &c. It is likewise pointed out that as Bombay has become the principal seaport of India since the opening of the Suez Canal, its sanitary condition is of special interest; for the health of all Europe depends more or less on that of that city. It therefore seems to be indispensable to pay great attention to the sanitary measures in force in the East, especially in Asia, so as to cause the adoption, if need be, of improvements calculated to be of general utility. The compiler of these documents is of opinion, on this point, that the use of vaccination ought to be made compulsory by international agreement.

ACTION OF PREPARATIONS OF IRON.—At a late meeting of the Therapeutical Society of Paris, M. Lebaigne laid before the meeting a paper on the mode of action of preparations of iron generally, and on dialysed iron in particular. A discussion ensued, in which M. Mialhe remarked that he had established the fact that all the salts of iron had the power of precipitating oxide of iron in the organism. When the acid of salt of iron is organic, it is oxidised; when it is mineral, it combines with the alkalis

of the blood. In both cases, the oxide of iron is brought out. M. Mialhe could not see any motive for particularising the oxide brought under notice at the expense of the others. All the compounds of iron which have the quality of precipitating their oxide into the blood are equally good; the phenomenon will take place with the chloride as well as with the sulphate of iron; and in this aspect all the compounds of iron will be equally successful. Doubtless all preparations are not equally useful in the hands of the physician; but the fact results from other reasons, rather physiological than chemical.

M. Delioux de Savignac did not consider that the remarks which had been read were sufficiently supported by facts in relation to elimination, and added that all the salts of iron are eliminated by all the passages, and especially by the urine. He had always discovered iron in that liquid. Entering on the question of preparation of iron, M. Delioux de Savignac said that he did not believe chlorosis was always cured by the administration of iron, however large might be the dose administered; but little remains in the blood, neither is it sufficient that the iron should remain in the blood; it must lodge in the globules, and it is further necessary that these should not diminish in number. It is, therefore, more a question of affording nourishment to the organism than supplying it with iron, and the ferruginous mineral waters with the small quantity of iron they contain, are often sufficient for this purpose. M. Bucquoy remarked that he thought the best preparation of iron was that which agreed best with the patient, whilst M. Constantin Paul avowed his opinion that all the physiological explanations that can be given about preparations of iron are pure hypotheses; since we have no knowledge as to the manner in which the iron introduced into the organism acts.—*Gazette Médicale de Paris*, April 25, 1874.

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| Southamptonshire Lunatic Asylum, Knowle. | Assistant Medical Officer | — |
| Cancer Hospital | Surgeon | — |

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The London Medical Record.

WEDNESDAY, MAY 27, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

GUBLER, COUTINHO, AND RABUTEAU ON JABORANDI, A POTENT SIALAGOGUE.

In November last, Dr. Coutinho, of Pernambuco, brought to M. Rabuteau some leaves of a shrub growing in Brazil, but of which the class has not yet been decided. It is known as jaborandi (*Piper jaborandi*), and a description of it will be found in the *Diccionario de Botanica brasileira*. M. Baillon, however, the well-known French botanist, is of opinion that the leaves received from Dr. Coutinho do not belong to a *Piperaceous* plant at all, but to one in the order *Rutaceæ*, which he identifies as *Pilocarpus pinnatus*, Linn. These leaves are of an elongated oval form unbroken, of an average length of from ten to twelve centimètres, and have a pinnated innervation. Dr. Coutinho asserted that they possessed sudorific properties, which he had found useful in his practice, and wished Dr. Rabuteau to make a chemical analysis of them. That chemist therefore proceeded to make an analysis of the small quantity of leaves in his possession, from which we reproduce the most important results. Not satisfied, however, with the chemical results he obtained, Dr. Rabuteau wished to try what would be the physiological effects, and taking a small quantity he had left in his possession, he has embodied the results of his experiments with the chemical facts obtained by the processes he used.

The jaborandi leaves, he tells us, have an odour difficult to define, but which recalls to a certain degree that of dry leaves or hay. This odour, which is faint when the leaves are intact, becomes more manifest when they are bruised. The taste also is weak; it is, however, slightly bitter when the leaves are masticated.

Fourteen grammes of leaves, reduced to a coarse powder, were submitted to distillation with 200 grammes of pure water, the heat being continued until one-third of the water had passed over. The liquor so obtained exhaled strongly the odour of the leaves, and had a very slight peppery taste; it was colourless and presented a scarcely perceptible turbidity, but no globules could be seen floating on the top. Treated with phosphomolybdic acid, with the double iodide of mercury and potassium, or with solution of iodine in iodide of potassium, it did not give any precipitate or turbidity. Consequently the odour of the leaves would appear to be due to a volatile principle; and further, the liquid obtained by distillation does not contain any volatile alkaloid.

The water which had not passed over was separated from the leaves and filtered. It was of a red brown colour, and presented also the odour of the leaves; but it had a bitter taste. It gave no precipitate with either the iodide of mercury and potassium

or with solution of iodine in iodide of potassium, showing the absence of any alkaloid. Phosphomolybdic acid, it is true, produced a dirty green turbidity; but vegetable infusions generally are clouded by this reagent, although they may not contain any alkaloid. Further, the application of Stas's test to the liquid that remained with the leaves in the retort, failed to reveal the presence of any organic base.

Finally, the aqueous liquid which did not distil over was evaporated to dryness. The residue was brown, bitter, and very soluble in water. It was treated with boiling alcohol, which only dissolved a part, and filtered. The alcoholic liquid was bitter, whilst that which remained on the filter was brown, but had no bitterness.

From these experiments, M. Rabuteau concluded that the jaborandi leaves have an odour due to a volatile principle which is not analogous to the essential oils contained in aromatic plants. It has a bitter taste, due to a principle soluble in water and in alcohol, which can be separated easily by heating the aqueous extract of the leaves with alcohol. Lastly, the leaves do not appear to contain any alkaloid.

M. Rabuteau had intended to await a further supply, to study the effects of the bitter substance which he looked upon as the active principle. Meanwhile, having seen M. Gubler's report, and although he had but eleven leaves, weighing 2.90 grammes, at his disposal, whilst from the above results, added to the fact that the leaves when masticated only slightly increased the flow of saliva, he had not much faith in the properties attributed to the drug, he resolved to experiment with them upon his own person. The 2.90 grammes were therefore reduced to powder, and about 10 o'clock in the evening, he prepared from them about an ordinary tea-cupful of infusion. This he took when nearly cold, one half alone and other half with the addition of a little sugar. The sugar, however, was scarcely necessary, since the taste of the infusion was not disagreeable. Ten or fifteen minutes after M. Rabuteau had drunk this infusion his forehead became moist, and he went to bed. Sweating came on shortly afterwards, and at the same time an abundant salivation, which continued during nearly two hours. The sweating began to diminish about an hour and a half after the commencement of the experiment, and ceased at nearly the same time as the salivation. The buccal temperature was noted during the experiment, and was found to oscillate between 83.8°F. and 98.8°F., the thermometer being placed under the tongue. There was, therefore, scarcely any abnormal heat. Nevertheless, the temperature was highest when the effects of the medicine were most active, about three-quarters of an hour after the infusion had been taken. After changing his wet shirt about midnight, the author slept well.

In this first series of experiments M. Rabuteau found that there were three points to consider with respect to these leaves; 1. A volatile principle; 2. A part soluble in water and perfectly flavourless; 3. A part insoluble in water, but soluble in alcohol, and having a bitter flavour. He was deeply interested in ascertaining which of these three parts was the active element, and for this purpose Dr. Coutinho gave him the last particle of jaborandi he had in his possession, amounting to just 2.75 grammes of the material. This small quantity was reduced to powder, and distilled with about 200 grammes of water, the operation being continued until half of

the liquid had passed into the receiver. The water collected in the receiver possessed the smell and the taste previously noted, and contained the chief part of the volatile principle disengaged from the leaves during distillation. M. Rabuteau drank this water and found no particular effects from it. Consequently, in so far as it is possible to judge from an experiment made with so minute a quantity of the substance, the distilled water of jaborandi does not possess the same sudorific and sialagogue properties as the infusion of this drug.

The decoction remaining in the receiver of the distilling apparatus was filtered and evaporated to dryness in the water-bath; the watery extract thus obtained was heated by alcohol, which separated it as before into two portions, the one soluble, and the other insoluble in this liquid. M. Rabuteau dissolved the flavourless part, insoluble in alcohol, in forty grammes of cold water, which he afterwards took and again felt no particular effects. He therefore drew the conclusion that that part of the watery extract which is insoluble in alcohol does not possess the sudorific and sialagogue properties of jaborandi. Finally, eight days afterwards, M. Rabuteau dissolved in water and took the part of the watery extract soluble in alcohol; this possessed a remarkably bitter flavour. This time he felt very decided effects, although the weight of bitter substance he took did not at all exceed 15 centigrammes. These effects consisted in a very considerable amount of salivation, to the extent of 240 grammes of saliva in the hour. It was not accompanied by any decided perspiration, only by a slight moistening of the forehead and the lumbar regions, with a slight shivering at intervals of about ten minutes. Judging from the last experiment; it is the bitter principle of the jaborandi which is the active sialagogue and sudorific principle. The same experiment seems to demonstrate that the sialagogue effects are those which are most easily produced, since these effects are the most noticeable even when the active substance has been taken in very small doses. When the dose is a little stronger, the sudorific effects are more considerable. M. Gubler, who tried this drug at the Beaujon hospital, reports that it has always acted as a powerful diaphoretic and an incomparable sialagogue. Its action becomes evident a few minutes after it has been taken, and almost with certainty. Very soon after it is administered, the sweat rolls down the face and the whole surface of the body. The saliva flows in such abundance that articulation becomes almost an impossibility; as much as a pint and a-half has been collected in less than two hours. At the same time the bronchial secretion has been observed to increase, and in one or two cases diarrhoea supervened. It is a remarkable fact, that the employment of heat, as M. Coutinho has remarked, has but a slight influence in the production of the sudorific effects of jaborandi. Whilst it is of paramount importance where our indigenous sudorifics are concerned, it is certainly not unavailing to administer jaborandi in a very hot infusion, and to cover the patient up warmly in bed; but these conditions are by no means necessary to develop the power of the new sudorific. Thus in one experiment, a person who is by no means subject to sweatings produced a copious perspiration in himself, by taking a glass of jaborandi scarcely warm, while he was going about his ordinary business. M. Gubler believes that a great future is in store for this new remedy, which he considers to be the first incontestable specimen of a diaphoretic

truly worthy of the name, that is to say, of a medication having the power of directly inducing the secretion of sweat by an elective action—by a special stimulation of the sudoriparous apparatus. The form of administration is from four to six grammes of the leaves in a cup of warm water, or if given in cold water the same results ensue. Unfortunately, no jaborandi is to be procured in Europe at the present time, so that further experiments as to the value of this remedy have to be made, and the place it will hold amongst therapeutical agents yet remains to be determined with precision and certainty.

NEEDHAM ON INSANITY IN RELATION TO SOCIETY.

Dr. Needham has reprinted a paper published in the *Transactions of the St. Andrew's Medical Graduates' Association*, on *Insanity in Relation to Society*. Dr. Needham is one of those who think that the increase of insanity is not only apparent but real; and that the arguments adduced by writers who hold the contrary opinion are outweighed by others, which show that the increase of the numbers of the insane in recent years exhibits an extraordinary development of insanity quite disproportionate to that of the population. He then proceeds to point out some of the influences which operate most strongly in the causation of the insanity. And first, with regard to civilisation; it is a question, he says, to which no satisfactory answer can be given, whether or not insanity prevails to an equal extent in civilised and in uncivilised countries, inasmuch as the information obtainable with regard to barbarous nations is small and unreliable. We may, however, concede that the development in the two classes of persons will be in opposite directions, and where there is a higher organisation and more complex mental condition, the morbid mental manifestations will assume a more active and definite form, and *vice versa*. This is undoubtedly true not only of civilised and uncivilised nations, but of rural and urban populations—amongst the one idiocy, imbecility and other evidences of imperfect development and activities will predominate; amongst the other, mania with delusion, acute melancholia and the results of mental strain and overwork. Real civilisation tends to prevent rather than promote insanity; as Sir James Cox says, 'insanity is a disease of ignorance.' Here we have the key-note of the causes which originate, and the remedies which are the cure of the evil. True education and its successors are best calculated to repair the injury, or prevent its extension. The author deplores the present state of education, and says the state of education limits the possibility of scientific instruction, and of the appreciation of the laws of public health; and yet 'it is certain that, without some knowledge of hygienic physiology, the full force and bearing of healthy or unhealthy conditions of life can never be appreciated.' Habits the most pernicious are indulged in with the freest licence, the laws of nature are outraged, and diseases supervene. 'Of these habits, that of intemperance assumes an unfortunately influential position. Of 1,029 patients admitted into the York Asylum, intemperance was the principal cause of the attack in nearly one-sixth of the number; and in a very much larger proportion of the cases it was assigned as the cause, and doubtless had a co-operative influence.' It is given as the cause in one-third of the whole of the admissions into American asylums, and the

statistics of insanity in France, Italy, Holland, Germany, and Sweden, shows its evil effects. In the great asylum at St. Petersburg, out of 997 patients admitted during ten years, 837 were said to have been reduced to a state of insanity directly or collaterally by this vice. The prejudicial influence of intemperance is not confined to the mere physical effects of alcohol upon the system, but depends largely upon the pauperism resulting from the direct expenditure of means, or loss of capacity for work, in the one generation, and the impaired or depraved mental standard in that which succeeds it. Intemperance and insanity are both strongly hereditary, and seem to be convertible in the offspring.

Insanitary conditions of life, such as overcrowding, favour the production of insanity. The Commissioners in Lunacy for Scotland observe, when commenting on the crowded and indecent state of the houses of the lower class of Scotch, 'the more these details are considered, the more hopeless will appear the task of remedying the evils which they shadow forth, until measures are adopted for raising the character of the masses, and training them to higher aspirations.' It must be remembered, says Dr. Needham, that the mere present is not that alone to which we have to look. Defects do not end with the individual, but descend from one generation to another, assuming constantly new and varied forms. And a knowledge in the individual of inherited predisposition may, and should materially influence his course of procedure and mode of life. Sound mental discipline, the habitual exercise of mental hygiene, and the employment of self-control combined with attention to physical health, may secure him against any active development of insanity. Insanity in the past or present should be made a legal obstacle to the marriage of an individual, and it would materially improve the mental and physical prospects of the race, if the marriage of blood-relations were altogether prohibited by law.

G. F. BLANDFORD, M.D.

MALINVERNI ON A CASE OF ABSENCE OF THE CORPUS CALLOSUM WITHOUT DISTURBANCE OF INTELLECT.

In the hitherto recorded cases of absence of the corpus callosum in man, there has also been mental deficiency; and the two conditions have been regarded as closely associated. Dr. Malinverni, Professor of Pathological Anatomy in the University of Turin, has published an interesting history of a case in which, although the corpus callosum, the septum lucidum, and the convolution of the corpus callosum were wanting, the intellectual faculties were entire. The following abstract is taken from the *Gazzetta delle Cliniche*, no. 15, 1874.

In a man, aged forty, who had died of gastro-enteric disease, and who, during life had shown no signs of alteration or deficiency of the intellectual faculties, it was found, on making the necropsy, that the corpus callosum was entirely wanting, together with the septum lucidum and the great cerebral convolution which surrounds the corpus callosum. On separating the hemispheres, the fornix, with its pillars, and the choroid plexus were at once seen. After hardening in alcohol, an examination of the brain gave the following results.

The cerebral mass, when viewed externally, did

not present any peculiarity; the form, number, size, and duration of the convolutions, and the depth of the sulci, were such as are met with in most normal brains. The fissure of Rolando was distinct. The fissure of Sylvius was deep, and the marginal convolution which surrounds it was well marked. The island of Reil presented four distinct processes.

The cerebral lobes in each hemisphere were symmetrical, and normally divided. The convolutions at the base were indistinct, especially those of the frontal lobe, which was bounded by the sulcus in which lay the olfactory nerve.

Viewed internally, the hemispheres presented a rare anomaly, viz., absolute want of the great convolution which runs over and surrounds the corpus callosum—the *processus cristatus* of Rolando. In the absence of this, the convolutions of the inner surface of the hemispheres presented the following appearance.

In the middle part of each hemisphere there descended four well-marked convolutions, divided to the base by deep sulci. These convolutions covered in the lateral ventricles, the optic thalami, corpora striata, and fornix. These four median convolutions were formed of the largely developed and extended (usually small and irregular) convolutions of Reil. In front of these four convolutions, three much more voluminous convolutions arose from the inner surface of the anterior cerebral lobe: these did not represent any normal convolutions, and might be regarded as compensatory for the want of the convolution of the corpus callosum. Of these, the two lower ran horizontally forwards; the third passed, somewhat obliquely, upwards. All three joined the inner margin of the frontal lobe.

The inner convolutions of the occipital lobe, five in number, were small, and ran obliquely upwards and backwards.

On looking at the brain in the middle line from the base, it was seen that the interhemispheric fissure was somewhat widened in consequence of the absence of the corpus callosum. The optic commissure was well developed. The lamina cinerea passed into the anterior commissure instead of the corpus callosum. The peduncle of the corpus callosum was present. The tuber cinereum was distinct, and the mammillary eminences well developed. The cerebral peduncles were of normal form and size.

On separating the cerebral hemispheres, the corpus callosum and septum lucidum were seen to be absent, and in their place the fornix was seen at the base; the corpus fimbriatum was distinct. The third ventricle and the structures in its neighbourhood were normal; the soft commissure was rather well marked.

In consequence of the absence of the septum lucidum, the lateral ventricles communicated freely with each other; the anterior cornua were in relation with the posterior extremity of the frontal lobes; the posterior cornua were closed in by some of the convolutions of the occipital lobe; the sphenoidal (descending) cornua and the cornua Ammonis were small. The corpora striata were rather small anteriorly. The cerebellum, pons Varolii, and medulla oblongata were normal.

With the exception of the anomaly above described, the encephalon presented no trace of organic lesion. The proportion of grey to white substance was normal. After removal of the meninges, the encephalon weighed 931 grammes; two other healthy brains, examined for comparison, and similarly

hardened in alcohol weighed, one 898 grammes and the other 990 grammes.

Professor Malinverni arrives at the following conclusion from a consideration of this case.

If a considerable portion of the brain may be absent without lesion of the intellectual, sensory, or motor powers, as was observed in the present case, we must be cautious in accepting the observations relative to the use of the corpus callosum, or to the functions of certain cerebral convolutions. We must not always accept the generally received axiom that there is the most intimate relation between matter and function in all organs, since the volume of the cerebrum is not always in proportion to the amount of intelligence.

The original memoir is illustrated with three plates. A. HENRY, M.D.

COMPARATIVE PATHOLOGY.

LEUCOCYTHÆMIA IN DOMESTIC ANIMALS. BY PROFESSOR O. BOLLINGER OF ZÜRICH.*

The number of observations on leucocythæmia in our domestic animals is still so scanty, that the relation of new cases must still be of some interest.

Some time since, I published a case of leucocythæmia in the pig (*Schweiz. Archiv für Thierheilkunde*, Band xxiv. 1871): I have since observed two cases in the dog, which I will now describe.

1. An old large house-dog had for some time shown symptoms of some disease. He lost his appetite and became thin; and one of the most important symptoms was a rather considerable swelling of the lower surface of the neck, which, on examination, was found to be referable to a distinctly evident enlargement of the lymphatic glands. The veterinary surgeon under whose care he was, diagnosed disease of the glands. As the tonic treatment employed had no effect, and the animal seemed hopeless, the owner resolved on his death. The fresh entrails were sent to me for examination, which gave the following results.

There was splenic and lymphatic leucocythæmia. The proportion of the white to the red blood-corpuscles was about 1 to 5. There were hyperplasia of the spleen and of all the lymphatic glands, and leucocythæmic infiltration of the lungs and liver. The lungs were much distended; the pulmonary pleura was normal. Their tissue was slightly emphysematous, of a pale red colour, anæmic; on close examination they were found to be studded nearly throughout with numerous punctiform and linear milary and submilary greyish white deposits, which on microscopic examination were found to consist of lymphoid cells. The bronchial glands were much enlarged—some to the size of a pigeon's egg—and formed a mass larger than a fowl's egg. On section, they were seen to be of a grey white colour, with dirty pigmented spots, moderately rich in juice, and of the consistence of marrow. From these glands and the anterior mediastinum a thickening and sclerosis of the cellular tissue of the neck extended outwards along the trachea; it had a pale grey white colour, and enveloped the nerves and large vessels to the thickness of one or two centimètres. A part of the muscular structure of the neck was also

encased in the hardened tissue, which also, near the lower end of the trachea, contained several muddy yellow caseo-purulent deposits, varying in size from a hempseed to a bean. These consisted of pus-corpuscles and their débris; in the indurated tissue, deposits of round cells could be recognised only in parts. All the cervical glands were enlarged to the size of a pigeon's egg or less, and were of greyish yellow white colour, and medullary consistence. The heart was of ordinary size; the walls were rather thick, firm, and of brown red colour. The pericardium was normal. The blood in both sides of the heart was partly fluid, partly loosely coagulated; it was of a clear red colour, and on microscopic examination showed such an increase of the white corpuscles, that there were about five to one white. This proportion was found also in the blood of the coronary veins. The liver was greatly enlarged: it weighed about 2 lbs. 10 oz. avoirdupois; its edges were rounded, its tissue was of a pale yellowish colour, the acini were very distinct, and some of them very yellow in the centre. Pale red blood escaped from the larger branches of the portal vein. On fine section of the organ after hardening, the whole tissue of the liver was found studded with an extraordinary number of lymphoid cells. Not only was Glisson's capsule, in its fine ramifications among the acini, changed into rows of cells from 0.5 to 0.8 millimètre in width, but there was an abundant diffuse deposit of lymphoid cells between the rows of gland-cells in the acini themselves. The liver-cells appeared quite intact, and mostly contained only two or three nuclei. Here and there, the fine bile-ducts were found to be plugged and obliterated, having a dull grey opaque appearance, and filled with biliary concretions. The spleen was enlarged about tenfold. It weighed about 2½ lbs.; and was 21½ inches long, 6 inches broad, and 2 inches thick.* The capsule was shining, very greatly distended, and of a pale flesh-red colour. On the surface was observed five or six prominent softish nodules as large as a walnut: their colour in the centre was diffuse whitish grey, on the periphery reddish grey. On section, the nodules were proved to be very pure in blood; both on superficial examination and under the microscope they perfectly resembled Malpighian corpuscles. The remainder of the tissue of the spleen was found on section to be of a pale flesh-colour, anæmic, and rather firm. On microscopic examination, besides an increase and thickening of the normal structures there was found a considerable diffuse deposit of lymph-cells. The mucous membrane of the digestive tube, and the lymphoid glands of the intestines, were normal. The mesenteric, epigastric and portal glands were remarkably enlarged; some of them were as large as pigeon's eggs, of a dull grey white colour on section, and of medullary consistence. No examination of the kidneys or of the marrow of the bones could be made.

In considering the changes described, we have before us an instructive example of the lino-lymphatic form of leucocythæmia. Besides the striking increase of the white blood-corpuscles, the remarkable enlargement of the spleen and of all the lymphatic glands calls for attention, as well as the leucocythæmic infiltration of the liver and lungs, hitherto described only in the pig. Whether and how far the sclerotic thickening of the cervical

* Virchow's *Archiv*, Band lix. Hefte 3 and 4.

* The normal spleen of a dog of similar size weighs about 9 ounces, and is 9 inches long, 2 inches broad, and 0.6 inch thick.

cellular tissue, extending on both sides of the trachea from the mediastinum toward the larynx, and containing caseo-purulent deposits, was connected with the general leucocythæmic disease, I will not attempt to decide. The cellular nature of the deposits, as well as their locality, which at first sight suggests a connection with the thymus gland, favours the idea that such relation existed. On the other hand, especially when we take into consideration the caseo-purulent deposits, there appears to be some ground for assuming a traumatic origin for this change.

As leucocythæmia is known to present many analogies with other diseases arising from absorption and contagion, I was desirous of not losing the opportunity which offered itself of testing the question, and made the following experiment.

The juice from a fresh leucocythæmic splenic nodule was mixed with a 0.5 per cent. solution of culinary salt, and a syringe (Pravaz's) was injected through the right thoracic wall directly into the lung of a small healthy dog.* The animal did not show any signs of disease after the operation, and was killed by strychnia four months afterwards. On section, all the organs were found normal, especially the spleen and lymphatic glands; the number of white corpuscles in the blood was not increased. In the right lung, corresponding to the point where the inoculation was made, there was a subpleural firm nodule as large as a lentil, with a yellowish-white centre and red nodule; microscopically, it consisted of firm fibrous connective tissues with central calcification.

Mosler has also performed experiments with inoculation on dogs, by injecting human leucocythæmic blood into the healthy animal, but also with negative result (*Die Pathologie und Therapie der Leukämie*, Berlin, 1862).† At the time of making his researches, Mosler was not aware of the occurrence of leucocythæmia in the dog; and he explains the failure of his transfusions by the non-occurrence of the process in this animal.

It is evident that the above described negative results of inoculation from dog to dog, as well as of Mosler's inoculation, from man to dog, do not disprove the metastatic nature of leucocythæmia, and that further observations are required. Virchow (*Die Krankhaften Geschwülste*, Band ii.) explains the course of leucocythæmic disease by assuming that the blood undergoes certain chemical and morphological changes in consequence of hyperplasia of a lymphatic organ, and that then, as a kind of metastasis, heteroplasmic disease of other organs takes place. Leucocythæmic metastasis is thus perhaps to be

* This method was chosen in consequence of my having obtained with it positive results from the inoculation of human tubercle into dogs, which are known to be inoculated with difficulty with tuberculous products.

† In a case of extirpation of the spleen in a dog which survived the operation, and was killed ten minutes afterwards, Mosler (*op. cit.*) found in the great omentum, which was hyperæmic, numerous dark red nodules varying in size from a lentil to a bean, and having externally, and even on section, a great resemblance to spleen and tissue. These spleniform tumours were found, on examination by Roth, to be lymphomata, with dilated vessels and hæmorrhagic; and Mosler concludes that there was a direct relation between the want of the spleen and these new growths. This conclusion is not supported by my observations, inasmuch as multiple spleniform teleangiectases of the omentum are often met with in dogs, whose spleen at the same time is perfectly normal.

explained by the transportation of a contagious material and by a kind of inoculation.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

VON MIHALKOVICS ON THE ANATOMY AND HISTOLOGY OF THE TESTICLE.—V. von Mihalkovics (*Bericht der Math.-phys. Classe der Königlichen Sachs. Gesellschaft der Wissenschaften*, 1873), under the direction of Ludwig and Schwalbe, has investigated the course, structure, and contents of the seminal tubes, the interstitial tissue of the testicle, and the lymph-vessels and the blood-vessels of the testicle and epididymis. Besides those of the human subject, the testicles of the rabbit, guinea-pig, rat, mouse, dog, cat, hedge-hog, boar, goat, bull, and several birds (pigeons, &c.), were examined. The paper is beautifully illustrated with several coloured plates. The author has arrived at the following conclusions.

1. The convoluted tubules form a network by dividing dichotomously. The terminal branches arising from this division are connected together by loops. No bud-like dilatations of the wall of the seminal tubes are to be found in the cortical layer of the human testicle. The author thus disposes of the view that the convoluted seminal tubes arise by blind extremities, as supposed by Beale, Henle, Kölliker, and Sappey.

2. The tubuli recti are not simple prolongations of the contorted tubules, but excretory tubes, which lie in the tissue of the organ of Highmore and in the lower end of the septa. They are considerably narrower than the contorted tubules, and are lined with a low cylindrical epithelium.

3. Supporting cells (*Stützzellen*) and germinal nets (*Keimnetz*) are artificial products. They owe their origin to the coagulation of a tough substance, rich in albumen, which lies between the seminal cells. On the addition of hardening reagents, coagulation occurs, and a network appears between the seminal cells.

4. The interstitial cells are constituents of the testicle, whose analogues are also to be found in other organs (coccygeal and carotid glands, and corpus luteum).

5. The connective tissue of the testicle consists of finer and stronger bundles of connective tissue, which form networks and are enveloped by endothelial cells. The mesh-spaces are in many places bridged over by their endothelial membrane, which then passes over to and becomes continuous with the outermost layer of the seminal tubes, and also envelops the blood-vessels. These endothelial membranes consist of a wide-meshed trellis-work of exceedingly fine fibres of connective tissue, over which endothelial cells are stretched. Each such endothelial lamella possesses many fine openings.

6. The lymph-passages arise partly in the mesh-spaces of the connective tissue enveloped in endothelium, and partly in the spaces of the individual lamellæ of the walls of the seminal tubules. Proper lymph-vessels enclosed within tube-like walls do not occur in the parenchyma of the testicle. In testicles where the interstitial substance consists principally of cells, the primary lymphatics form free passages between their cells. From here the lymph flows into

larger excretory passages, which are already lined with endothelium.

7. A capillary network of blood-vessels, lying in intimate connection with the membrana propria, is closely woven round the seminal tubules.

8. The epididymis is not only an excretory tube, but also the place for the secretion of the fluid constituents of the seminal fluid. The blood-vessels form a dense capillary network in the non-muscular wall of the canal of the epididymis. This network lies immediately under the cylindrical epithelium, and presents a striking resemblance to the divisions of the blood-vessels in the ovarian follicle.

WM. STIRLING, D.Sc., M.B. (Leipzig).

LE BLANC ON ASPHYXIA THROUGH INSUFFICIENCY OF OXYGEN.—In a letter to M. Dumas, M. Le Blanc says: M. Paul Bert has made known the results of physiological experiments of great interest relating to a sojourn of the learned professor in a situation where the air could be artificially rarefied to several degrees. These experiments prove that the physiological effects of a rarefied atmosphere are due to the diminution of exterior pressure which reduces the tension of the oxygen in the gas inspired. M. Bert has wished me to state my own experiences in mines where the proportion of the oxygen of the air was notably lowered. I have lost consciousness in an ascending 'bord' in a gallery of a mine at Huelgoat (Finisterre). Afterwards I received some of the air to analyse. The air was free from carbonic acid; it had remained stagnant in a 'bord' where the vitriolisation of the rock, charged with pyrites, was very rapid. The analysis indicated: oxygen, 9.6; nitrogen, 90.4; carbonic acid, 0.0. Now, the tension of the oxygen in this air was exactly that of the oxygen of normal air at a vertical height corresponding to a barometric pressure of 0.34 metre of mercury. At this degree of rarefaction, M. Bert has proved, by artificial means, the necessity to inspire air of which the oxygen is more condensed, in order to escape asphyxia.

PAGET HIGGS, D.Sc.

RECENT PAPERS.

On the Connection between the Cerebral Ventricles and the Subarachnoid Space. By Professor Axel Key and Dr. G. Retzius. (*Nordiskt Medicinskt Arkiv*, vol. vi. part 1, 1874.)

The Normal Anatomy of the Prostate Gland. By Axel Iversen. (*Ibid.*)

SURGERY.

PARONA ON A CASE OF VARIX OF THE VENA DORSALIS PENIS TREATED BY INJECTION OF CHLORAL.—Dr. Parona describes in the *Giornale Italiano delle Malattie Veneree e della Pelle* the case of a man, aged thirty, who had practised masturbation to a moderate extent from the age of eighteen, and could not obtain an erection the first time he attempted coitus. After this failure, he resumed his vicious habit; but at the end of three years he one night made a fresh attempt at connection, and contracted a gonorrhoea which lasted four or five months.

Dr. Parona, on being consulted, found that erection was incomplete, in consequence of a want of turgescence of the glans, and that the dorsal vein was varicose. Rightly attributing the defective function to disordered circulation, he injected chloral into the vein. Two days later, erection was complete but rather painful; bromide of potassium was given

internally. Erection continued to be troublesome for some time; and then all inconvenience ceased.

A. HENRY, M.D.

PARONA ON ANGIOMA OF THE GLANS.—Dr. Parona describes (*Giornale Italiano delle Malattie Veneree e della Pelle*) the case of a boy, eight years old, in whom, when he was a few days old, the large development of the glans attracted the attention of his parents. Some months after birth, he passed some bloody filaments with the urine. At the age of three years, the glans had become very large towards the frænum, and discharged blood. Dr. Larghi proposed decapitation of the penis, declaring the disease to be angiectasis. Dr. Bottini believed that there was a small encysted calculus; but nothing of the kind was found on operation.

At a later period, Dr. Parona, agreeing in the diagnosis of angiectasis, cut away the part of the glans where the tumour existed. The expectation of a radical cure, however, proved fallacious, since at the inner side of the part operated on, and on the cicatrix, red elevations as large as pins' heads budded forth. The application of caustics was unsuccessful, and the new growth continued. Dr. Parona therefore determined to amputate the entire glans. Before the operation, the penis increased in circumference towards the extremity, which was as large as an adult thumb; the prepuce was red, and large serpentine veins ran between the mucous and cutaneous layers. At the orifice of the urethra, and towards the seat of the frænum, were irregular enlargements of fleshy consistence, and resembling a mass of varicose veins. The urethral mucous membrane, as far as it could be seen, was red and granular. On the glans were sky-blue spots dotted with red; it was of natural consistence, and did not manifest fremitus or pulsation; and became intensely red when the boy stood long on his feet. The corpora cavernosa, at the end next the glans, were small.

On the eighth day, the wound was healed, and the child passed urine. After a time, the urethral orifice contracted so much, that it was necessary to have recourse to gradual dilatation.

The glans having been divided longitudinally, the extremity of the corpora cavernosa was seen to be well developed in proportion to the age of the boy, and unaltered. In the parenchyma of the glans, both at the circumference and in the centre, there were many more or less circumscribed points where the tissue was of less density, and redder, and which, when emptied of blood, appeared spongy. The urethral mucous membrane was covered in great part with reddish granulations of greater or less size. Microscopic examination showed well marked characters of angioma to be present.

A. HENRY, M.D.

MENZEL ON PARTIAL FRACTURE OF THE TIBIA IN AN ADULT.—A case of partial or 'green stick' fracture of the tibia, occurring in a man forty-eight years old, is recorded by Dr. Menzel, of Trieste, in the *Gazetta Medica Italiana-Lombardia* for March 28. This injury is by far most common in children. Dr. Menzel says that, in sixty cases observed during life, the bones of the forearm were in nearly all the seat of injury.

Of partial fracture in the adult, Gurlt has collected seven cases; in six of which the femur was affected, and in one the radius and ulna. Dr. Menzel describes his case as follows.

Antonio Gullich, aged forty-eight, was knocked down by a cart loaded with stone, on December 4, 1873. One of the wheels passed over his left leg. He was carried to the hospital; and on the inner side of the leg there was found a transverse lacerated wound, with greatly crushed edges. There was no dislocation, abnormal mobility, or crepitus; the diagnosis was contusion without fracture. On the following days, the part became swollen; and on December 9, there was distinct dulness in the lower lobe of the left lung, with rusty sputa. On introducing the finger into the wound, the inner angle of the tibia was found to be denuded, but no fracture could be detected. There was, however, some elastic mobility of the bone at the seat of fracture. His general condition became worse; the presence of pneumonia removed all hope of saving him by amputation, and he died on December 23, nineteen days after the injury.

At the necropsy, the ordinary appearances of pyæmia were found. The left tibia was partially fractured between the inferior and middle thirds, at a part corresponding to the cutaneous wound. About seven-eighths of the periphery of the tibia were divided transversely; the remaining eighth, corresponding to the inner angle, was perfectly intact, presenting not a trace of fissure. The inner angle corresponded precisely with the external wound. There could be no doubt that, when the injury was inflicted, the wheel came into contact with the inner angle of the tibia, and that the bone was broken on the opposite side in the same way as a stick bent over the knee breaks on the convex and not on the concave side. The fibula was not injured.

A. HENRY, M.D.

CASELLI ON AMPUTATION OF THE TONGUE IN A CHILD.—Professor Azzio Caselli relates (*Bullettino delle Scien. Med.* part v. vol. xvi., quoted in *Gazzetta delle Cliniche*, no. 14, 1874) the case of a boy, aged nine, who injured his tongue by falling with a stalk of hemp in his mouth. A cancerous tumour followed, and in the course of about two years extended over the whole right half of the tongue, except the apex; it affected the middle part of the left half, and the right side of the floor of the mouth. At the part where the tumour had commenced there was a large ulcer, which discharged blood and ichor. There was no enlargement of the neighbouring lymphatic glands; but the boy was emaciated and anæmic.

He was admitted into hospital on September 1, 1873. He was found to have a very acute attack of glossitis, which had followed the mastication of irritant substances, and which interfered with breathing. This was subdued in a few days by local blood-letting, cold applications, and the administration of food through a tube introduced by the nostrils. On the 11th of the month, Professor Caselli proceeded to remove the entire tongue by Rizzoli's method, dividing the lower jaw near the median line, and applying a ligature. On the fifth day, seeing that the tumour was slow in coming away, he removed it by a Chassaignac's écraseur; there was no hæmorrhage. In thirty days the wound was quite healed, and deglutition and speech were normal. Although more than three-fourths of the tongue were removed, the boy can pronounce distinctly words containing the letters *s* and *z* (*ts*).

A. HENRY, M.D.

GLEAVES ON WOUND OF THE RIGHT ILIUM.—Dr. S. C. Gleaves (*Trans. of the Medical Society of*

Virginia, 1873, and *Philadelphia Medical Times*, April 18, 1874) reports the case of a stout, athletic man, aged thirty-five, who was shot with a Colt's navy pistol, the ball taking effect near the middle portion of the ilium, two inches below the crest, passing downwards and inwards nearly in a line with the symphysis pubis, and fracturing the bone through the crest. Contrary to orders, on the following day he rode ten miles on horseback. In a week he had slight fever and great pain; the wound suppurated a little. In three weeks he had high fever with violent pain, the wound having ceased to suppurate for several days. The probe passed easily for three inches, but then met with resistance; water-dressings, morphia, and mercurial purgatives were ordered. In two or three days he improved somewhat, but about three weeks later grew much worse again, became weak and emaciated, with heavy night-sweats, chills, anorexia, and symptoms of pyæmia and speedy dissolution. Careful palpation gave evidence of fluid in the pelvic cavity. There was no discolouration or tenderness in either the perineal or the inguinal region. It was then resolved to trephine the pelvis. Brandy being administered, the patient was placed on his left side, his legs slightly flexed, and chloroform was administered. An incision three and a half inches long was then made through the glutei, directly above the great sciatic notch, and the parts were carefully dissected to the bone. A trephine was applied, and its withdrawal was followed by a full flow of sanious pus, thick and offensive. A digital examination did not reveal the presence of the ball. After a pint and a half of pus was discharged, a compress was applied, and brandy and morphia given. From this time for three months a pint of pus was discharged daily, the patient taking three times in the twenty-four hours fifteen drops of tincture of the chloride of iron and three grains of sulphate of quinia, and using in the same time a pint of brandy or rye whisky. He was confined to his bed for five months, losing thirteen gallons of pus, and drinking sixteen gallons of whisky and brandy. He finally recovered.

BROCHIN ON TREPHINING THE MASTOID PROCESS.—In a treatise on the above subject, M. Brochin (*L'Union Médicale*, April, 1874), who has witnessed several operations followed by remarkable success, gives a history of the operation:—

In France it was first practised by J. L. Petit for caries of the petrous portion of the temporal bone. The proceeding has been absolutely condemned by many specialists, such as Itard and Bonnafont; but in the opinion of the author, while it is properly abandoned in cases of chronic deafness, it is indicated—1, in caries of the petrous portion of the bone; 2, in abscess of the mastoid process; 3, in cases where suppuration in the middle ear spreads to the mastoid cells, either by the progress of the malady or through suppression of the discharge from the ear.

This opinion is not theoretical, but is based upon the observation of fourteen cases in hospital and private practice reported by M. Brochin, of which only one was fatal, and that from an intercurrent disease.

[The reporter has had two cases of suppuration in the mastoid cells, one following a blow, and the other in a child of strumous habit, in which incisions followed by the use of the gouge gave exit to pus, and rapid recovery ensued.]

WM. ALLINGHAM.

MATERIA MEDICA AND THERAPEUTICS.

RAVICINI ON THE HYPODERMIC INJECTION OF QUININE IN TYPHOID FEVER.—Dr. Ravicini, writing in the *Rivista Clinica di Bologna*, January, 1874, recommends the hypodermic injection of quinine in the treatment of typhoid fever. He makes a solution of 5 grammes of sulphate of quinine in 50 grammes of distilled water, and adds 10 centigrammes of hydrochlorate of morphia. With this solution he makes, early in the morning, by means of a Pravaz's syringe, two injections, each of 85 centigrammes; two others at noon; and two in the evening. He keeps the patient under the influence of the medicine for several days, accompanying the disease in all its phases.

Under this treatment, he says, the sordes disappears from the mouth and teeth, the headache, meteorism, and gurgling in the right iliac fossa are greatly diminished, the spleen is reduced in size, and the countenance becomes more composed. He does not believe that the quinine at once cuts short the course of the disease, but that it favours its disappearance, since he has seen nearly all his patients convalescent at the end of the second week, or at most of the third. It is only when the disease has not been treated from the beginning, that it has been prolonged beyond the third week.

The morphia he believes to moderate the symptoms of nervous disorder which are so constant in typhoid fever.

A. HENRY, M.D.

EDES ON PEPSIN.—Dr. R. T. Edes has examined many of the preparations of pepsin now offered for sale, and gives (*Boston Med. and Surg. Journal*, Jan. 1, 1874) the following as his conclusions.

'Much of the dissatisfaction with pepsin expressed by physicians is due to the use of preparations which contain little or none of it.

'The pepsin made by Scheffer's process is by far superior to any other in ordinary use. The wine is feeble, but necessarily inert. Elixirs of pepsin and bismuth are humbugs. Pepsin should be administered with an acid, and with as few drugs as possible. A small amount of alcohol is not inadmissible, but a large amount retards digestion.

'Its beneficial action is not limited by the amount of albumen which it dissolves in a test-tube without change or renewal of any of the contents.'

ELECTRO-THERAPEUTICS.

BEARD AND ROCKWELL ON THE COMPARATIVE ADVANTAGES OF ELECTROLYSIS AND GALVANOCAUTERY.—Drs. Beard and Rockwell, in their *Clinical Researches on electro-surgery*, thus sum up their views on the comparative advantages of electrolysis and galvanic cautery.

1. The relief of pain of malignant tumours is best accomplished by electrolysis or by external galvanisation. Cauterisation with the galvano-cautery burners modifies the pain to a certain extent, and in some grave cases may have a more permanent relieving influence than electrolysis or external electrification; but for the great majority of cases of ulcers or tumours, where relief of pain is the leading indi-

cation, electrolysis or external galvanisation, or both combined, will best accomplish the purpose.

2. Scirrhus of the breast, where there is no ulceration, and external fibroids and goitres are best treated by external electrification and electrolysis.

3. For the treatment of polypi—some other tumours, with a base of moderate size and accessible, as of the ear, nose, larynx, and uterus—the galvano-cautery is preferable to electrolysis.

4. In cases where large blood-vessels are involved, and there is consequently great liability to hæmorrhage, the galvano-cautery is preferable to electrolysis. Moderate hæmorrhage can be easily controlled by electrolysis, especially by the positive pole.

5. Erectile tumours, superficial and subcutaneous, epithelial and encephaloid cancers in all accessible localities, may be treated with more or less success by either electrolysis or galvano-cautery, or by both combined. Drs. Beard and Rockwell are inclined to the belief that the results of a combination of the two methods would be more permanent in many cases than when only one is employed. To establish this opinion by clinical experience will require time and careful observation.

OPHTHALMOLOGY AND OTOLOGY.

QUAGLINO ON BROMIDE OF POTASSIUM IN ALCOHOLIC AMBLYOPIA.—Dr. Quaglino (*Annali di Ottalmologia*, vol. iii., and *Gazzetta Medica Italiana-Lombardia*, March 21, 1874) regards the form of amblyopia in question as a result of the abuse of alcoholic liquors; he doubts whether there is an amblyopia arising from the abuse of tobacco, or considers it at least extremely rare. Men are generally the subjects of the affection. It usually commences slowly, and is first indicated by shortening of the range of vision, or diminished clearness of distant objects, due to the obscuring of the visual field by a thin cloud. It is most marked in bright daylight and in the summer, and diminishes on cloudy days in the evening, and when the patient is in a moderately lighted place. This erethism of the retina is characteristic of the early stages of the malady. As it advances, the faces of persons appear to the patient if they were covered with a white powder, and the acuteness of vision progressively diminishes until the patient can only distinguish the medium letters of the test-scale with difficulty at the distance of a few inches. In some rare cases, there is an alteration in the power of perceiving colours or their gradations. In such cases, the centre of the field of vision is covered by a central yellowish or blue opacity. Having arrived at a certain stage, the amblyopia remains stationary for several months, both eyes being affected. The cause remaining, sight is more and more impaired, until at last large objects only can be perceived. If the cause be removed, the malady may disappear spontaneously.

On external examination, there is only increased brightness of the cornea, with some slowness of the movements of the iris. In old persons there is also varicosity of the conjunctival veins, at the corners of the eye and along the course of the recti muscles.

Ophthalmic examination in the early stages of the malady shows slight redness of the papilla, turgor of the central veins, and diminished calibre of the arteries. In more advanced cases the external half

of the papilla is colourless, tending to white; and, in some cases, the papilla has a white appearance over its whole surface, and the arteries are pale, anæmic, and small. The venous network of the choroid may be engorged and redder than usual. The blue whitening of the pupil shows itself rather readily when the case is complicated with meningitis or cerebral congestion. Rheumatism, gout, diseases of the liver, spleen, stomach, and kidneys, and atheroma of the vessels, are somewhat frequent complications.

These amblyotic patients almost always have loss of appetite, spasmodic cough, vomiting, trembling of the hands, uncertain gait, irritability of temper, and cramps in the lower limbs. Their breath has an acid or alcoholic smell; they have an earthy colour, and in old persons there is often acne. In some cases there are weakness of the lower limbs, loss of memory, vertigo, &c., indicating grave changes in the spinal cord or in the brain.

Taking into consideration the sedative action of bromide of potassium on the nervous centres of reflex action, and its effect in reducing the action of the heart and lowering the temperature, and bearing in mind the construction of the retinal vessels observed by Lewizki to follow its use, Dr. Quaglino determined to try the effect of this drug in gradually increased doses. He began by giving a gramme per diem in 170 or 200 grammes of water, and increased the dose gradually till toxic effects began to appear. He relates seven cases thus treated; in some the cure was complete, in others the disorder was arrested, and in none was there a relapse. He concludes that, if bromide of potassium causes narrowing of the arteries and veins of the cerebral membranes, it ought to be useful in amblyopia maintained by descending neuritis and by retinitis arising from insolation, by rheumatic meningitis, and by lead-poisoning. In weak and anæmic subjects, bromide of iron appears preferable; and quinine may be given with it when there is an indication of the origin of the disorder from malaria and paralysis of the ganglionic nerves.

A. HENRY, M.D.

FUMAGALLI ON RUPTURE OF THE CRYSTALLINE LENS, AND ON THE MECHANISM OF ACCOMMODATION.—Dr. Fumagalli (*Annali Universali di Medicina*, November, 1873), relates the case of a lad aged fifteen, who, while in a wood, was struck in the left eye by a branch of a tree. He felt much pain at the time, and had temporary obscurity of vision, but it was not till some days later that he found that the sight in the eye was gradually becoming more impaired. On examination, the iris and cornea were found to be sound; but the anterior part of the capsule of the lens was divided vertically in the middle, and the lens was opaque. The case was clearly one of traumatic cataract.

An important phenomenon was observed. The edges of the fissure receded from or approached each other, according as the patient looked at near or at distant objects. This, Dr. Fumagalli observes, confirms Helmholtz's theory of the mechanism of accommodation.

A. HENRY, M.D.

CARNUS ON THE ACTION OF THE CONTINUOUS CURRENT UPON OPACITIES OF THE VITREOUS HUMOUR.—M. Carnus (*La France Médicale*, April 25, 1874) reports several cases in which the value of this plan of treatment is shown, and which corroborate the experience of Dr. Onimus during the last year or so, that the continuous current mate-

rially assists in the removal of opacities from the vitreous humour, as well as synechiæ resulting from iritis, by arousing and establishing a more active condition of the intra-ocular circulation. This result is best obtained when one pole is applied to the superior cervical ganglion, and the other to the upper eyelid. The strength of the current employed appears to be that of eight or ten cells, and was generally applied twice a week.

CASE I.—Exudation into the Vitreous Humour from old specific Retinitis.—Madame F., aged twenty-nine, had suffered from hemicrania on the left side for about a year, with diplopia and a convergent strabismus on the same side. When she came under observation, she had for some time been undergoing a course of anti-syphilitic treatment, but with little benefit. The field of vision was not diminished in either eye. After one or two applications of the current the pains disappeared, and at the end of a month the power over the external rectus muscle had returned. After a time the media regained their transparency, and the normal acuteness of vision was completely restored.

CASE II.—Synechiæ from Syphilitic Iritis, and Opacity of Vitreous Humour.—Madame L., aged twenty-eight, had complained of failing vision in the left eye for some months. She could just count fingers at ten feet, and could read No. 10 with difficulty. She had pain on both sides of the head at times. There were numerous adhesions of the iris to the capsule of the lens, and the vitreous humour was hazy from exudation. After eight sittings the pains disappeared, and the opacities in the vitreous humour had much diminished. At the end of eighteen sittings the adhesions had almost disappeared, and the vision was nearly normal.

CASE III.—Madame Ch., aged thirty-two, in 1872 had acute iritis, which left the pupil permanently distorted by extensive adhesions, but did not impair the transparency of the vitreous humour. Under the influence of the continuous current twice a week for some months the pupil regained its proper shape, and the iris became free from adhesions and perfectly mobile.

CASE IV.—Sarah—, aged twenty-three, an American, a painter by profession, was seized with violent facial neuralgia, which, however, left no impairment of vision. Five years afterwards, on her arrival in France, her left eye failed her while painting; her vision became clouded, the mist lasting several days; exposure to cold appeared to be the only exciting cause. She had occasional circumorbital pain; the vitreous humour was opaque, with numerous floating bodies, so that the optic disc could hardly be distinguished. The application of electricity was commenced on May 17, 1873, with eight elements—subsequently increased to ten—applied for two minutes. The treatment was persisted in up to July, when the vitreous humour had become so far clear that the disc was visible, and the vision had much improved. Unfortunately the treatment was here interrupted by her return to America.

CASE V.—Madame B., aged thirty-four, presented herself February 18, 1873, with keratitis and subacute irido-choroiditis; the keratitis existed in both eyes, with irregular pupils from synechiæ, and with patches of opaque tissue upon the anterior capsule of the lens. With the ophthalmoscope the fundus could be seen with difficulty through the vitreous humour, which was turbid with pigmented opacities.

With the right eye she could read No. 12 at nine inches; with the left eye, No. 8 at nine inches. The treatment employed consisted in the local application of calomel, and the continuous current. At the end of a week some of the synechiæ had disappeared, and her vision steadily improved, so that on April 14 with the right eye she could read No. 8, and with the left eye No. 1, at nine inches.

BOWATER J. VERNON.

ROOSA ON NON-SUPPURATIVE INFLAMMATION OF THE MIDDLE EAR.—Dr. Roosa, of New York (*Treatise on Diseases of the Ear*, 1873), divides non-suppurative inflammation of the middle ear into two distinct classes—1. Catarrhal; 2. Proliferous. He says that the first of these forms, unlike the second, is not at all insidious in its approach: there is always either a history of attacks of subacute catarrh of the middle ear, leaving on each occasion more or less deafness, or there is a general excess of secretion throughout the mucous tract which lines the nares, pharynx, and Eustachian tubes. The attendant objective symptoms are impairment of hearing, changes in the tympanic membrane, imperfect action of, and changes in the structure of the Eustachian tube, together with nasopharyngeal inflammation. Besides impairment of hearing, the patients suffer from a feeling of fulness in the head, and occasional tinnitus. The pathological appearances found after death are—1. Collections of mucus distending the cavity of the tympanum; 2. Thickening of the mucous membrane; 3. Filling up of the cavity by lymph.

On the other hand, the symptoms of what Dr. Roosa calls the proliferous form are, he says, much less positive than in the other. There is no sore throat, no increase of secretion in the pharynx, nares, or middle ear. It is a peculiarly insidious affection, and the tinnitus which often accompanies it is apt to be extremely troublesome. This inflammation shows a higher formation than the catarrhal, and the pathological appearances found after death present a great variety. They are chiefly connective tissue formations in the tympanum, bands of adhesion in connection with the ossicles and sides of the tympanum, hypertrophy of the bony walls, exostoses, and ankyloses.

The catarrhal form is the more amenable to local treatment. After discussing the various operative proceedings that are employed where more simple means—such as injections of medicated fluids into the tympana—have failed to relieve the condition, Dr. Roosa's conclusions, prompted by his own experience and that of others, may be summed up by saying that incision of the tympanic membrane is not a dangerous procedure; that, in his estimation, its chief value consists in furnishing a means of treating the lining of the middle ear; and that division of the tensor tympani, as practised by Weber, and the division of adhesions existing between the tympanic membrane and the walls of the tympanic cavity, are deserving of trial.

W. B. DALBY.

RECENT PAPERS.

Two Cases of Pseudoplasma of the Eye. By Dr. S. Lindner. (*Allgemeine Wiener Medizinische Zeitung*, nos. 12 and 14, 1874.)

Resection of the Ciliary Nerves before their Entrance into the Bulb of the Eye. (*Gazzetta delle Cliniche*, no. 4.)

The Action of Muscarin on the Pupil and on Accommodation. By V. Krenchel. (*Hospitals-Tidende*, no. 10, 1874.)

Old Wound of the Eye: Traumatic Cataract; Posterior Adhesion of the Iris obstructing Vision: Recovery of Sight. By Dr. Leuros. (*Gazeta Medica da Bahia*, Jan. 15, 1874.)

Extravasation between the Optic Nerves and their Sheath: also Extravasation in the right Vitreous Body, following Fracture of the Bulb and Laceration of the Middle Meningeal Artery. By Dr. J. Talko. (*Ibid.*)

Micrometry of the Fundus of the Eye. By Prof. Laqueur. (*Centralblatt für die Med. Wissenschaften*, no. 59, 1873.)

The Accommodation Power of the Ear and its Disturbances. By Dr. A. Lucae. (*Berliner Klinische Wochenschrift*, no. 14.)

OBSTETRICS AND GYNÆCOLOGY.

BUCKLEY ON HERPES GESTATIONIS.—Dr. L. Duncan Buckley describes (*Am. Journ. Obstetrics*, February, 1874) under this title a case of a rare affection of the skin peculiar to pregnancy, and also gives a summary of eight other similar cases which he has found recorded. From the clinical histories of these nine cases he sums up the peculiar features of the disease as follows.

1. There is an affection of the skin directly dependent upon the gravid state of the uterus, which may make its appearance at any period of gestation up to the seventh month, and generally continues until the organ is emptied of its contents, and has in a measure resumed its former state. This eruption is very apt, moreover, to recur at each successive conception.

2. The cutaneous manifestations are chiefly an intense irritation, consisting of burning, itching, or stinging, and sometimes pains, with the development of erythema, papules, vesicles, and bullæ up to the size of a hen's egg, the majority of the blebs, however, seldom surpassing in size a large bulla of herpes. These vesicles are commonly in groups, but do not follow any definite nerve-tracks, appearing first generally on the extremities, and afterwards involving the larger part of the body. Exhaustion may ensue from the cutaneous irritation, but the disease is non-febrile.

3. The eruptive disease does not terminate at once after delivery, but slowly retrogrades, by the development of fewer and fewer vesicles at increased intervals, until the disposition thereto ceases entirely. An outburst of greater or less severity is most likely to happen on the third day; it is rare for any manifestations of the disease to remain a month after parturition.

4. This affection is sometimes accompanied or followed by other neurotic manifestations, as erythema, urticaria, and neuralgia, which may continue in the interval of conception, while in many instances the patient experiences perfect health in the interim.

5. This eruption has occasionally been the first indication that impregnation has taken place.

6. The majority of the cases have been uninfluenced by treatment, relief occurring only on the emptying of the uterus.

7. The children are not, as a rule, affected by the eruption in the mother, although in one case it was accompanied in two instances by a still-birth. Here, however, the first eruption was followed by the delivery of a living child, whereas the second conception gave a still-born child without any material eruption.

EARLE ON ELECTRICITY IN POSTPARTUM HÆMORRHAGE.—Dr. Charles W. Earle relates (*Med. Examiner*, February 1, 1874) a case of *postpartum*

hæmorrhage in which after other measures had failed he successfully resorted to electricity. The subject of it commenced to experience labour-pains on December 9, but the uterus seemed unable to effect the expulsion of the fœtus, and after waiting about twenty hours she was readily delivered with instruments. Without moving her, Dr. Earle says he 'sat down by the bedside to watch the condition of the uterus for one hour before putting on the binder and taking my departure. There had been such inertia of the womb during the entire labour, that I was fearful of what my patient very soon experienced.

'Without any premonition whatever, the uterus ceased its contraction, and a stream of blood, apparently as large as half my arm, came pouring from the vagina.

'I immediately introduced my right hand to the fundus of the womb, and, with my left, tried to compress the descending aorta, giving orders at the same time to the attendants to administer more ergot, to lower the patient's head, apply cold water to the abdomen, and procure a piece of ice for inserting into the uterus. All this was done rapidly, and in much better order than is usual in such cases. But what a change there was in my patient! In two minutes she had changed from a most favourable condition—indeed, from a joyous and happy one—to an exsanguine, bloodless, and pulseless state; apparently, she was moribund.

'In addition to what I had already done, I gave what stimulants could be found in the house; and keeping my hands in the position noticed above, as the most effective way of stopping the largest amount of blood, sent immediately for Dr. I. N. Danforth, who lived in the immediate vicinity. He came forthwith, and relieving me from my most fatiguing position, suggested port wine and carbonate of ammonia as the stimulant. Ergot had been given freely; ice, externally and internally, had been used; compression resorted to; stimulants and nourishing broths administered; but the hæmorrhage did not cease. Nothing, up to this time, had produced a good, strong continuous contraction of the uterus. Dr. Danforth now advised electricity; and in a very few minutes a battery was at hand; and placing one pole over the sacrum, and the other over the uterus, the current was commenced.

'The effect was instantaneous and almost marvelous.

'The uterus contracted firmly; the hæmorrhage ceased immediately; and as long as the electrical current was continued, the uterine tumour remained hard, and of proper size.

'It was necessary, however, to keep up the current for some time; for as soon as we ceased using the electricity, the womb softened, and blood commenced to flow. It was about twelve hours before we ceased using the instrument altogether. At that time the adynamic condition of the entire system, and uterus especially, seemed to be overcome, and we felt safe in leaving our patient.

'The lady was saved, and made a very comfortable convalescence. Electricity certainly contributed largely to the favourable result.'

THOMAS ON NORMAL OVARIOTOMY.—Professor T. G. Thomas reported to the New York Obstetrical Society on Dec. 2, 1873 (*Am. Journ. Obstetrics*, Feb. 1874), a case of normal ovariectomy (removal of both ovaries as a cure of the intense and incessant nervous suffering attributable only to them, and not on

account of the usual cystic degeneration) performed by him eleven days ago, which was doing very well.

This operation was first performed by Dr. Beatty of Georgia, and the above is, we believe, the only other operation of this kind. Dr. Beatty's case is reported to have been cured.

EPIDEMIOLOGY.

MOORE ON TYPHOID FEVER.—In a paper read before the Birmingham Branch of the British Medical Association in December last, Mr. R. Bond Moore gives an account of two outbreaks of disease at Sedgley Park School, which he believes to show the difference between simple sewage poisoning and true enteric fever. The first outbreak, which affected the masters, pupils and servants 'indiscriminately,' is what Mr. Moore has named the sewage-poisoning outbreak. It was characterised by diarrhœa, sickness, great languor, and much prostration. On examination of the drinking-water, it was found to be contaminated by sewage, owing to the contents of a drain leaking into the well. The well-water was pumped out, the drain was reconstructed, and the disease forthwith subsided. About seventy persons were affected in this outbreak. During the two years which followed, the health of the school was satisfactory, when Mr. Moore was called to see a boy who had arrived at the school but four days before and who was complaining. This boy's illness proved to be enteric fever, and was followed by forty-one other cases. Mr. Moore says: 'The closets used by the boys were of the old-fashioned type; eight or ten compartments leading into one common cesspool, capable of holding the soil from the boys for three months; it was then—during the holidays—emptied, flushed, and cleansed, and thrown open to the air. This state of things had existed, *innocently*, for 100 years. The boy used these closets every day during the three or four days he was up and about, and I think I shall be able to convince you that his evacuations containing typhoid germs, whatever they may be, accidentally deposited in this cesspool (finding there a bed beautifully adapted for their rapid development), were the means of occasioning one of the most serious outbreaks of typhoid fever I ever saw, or probably ever shall see, for in a few weeks there were no less than forty-two boys down with "genuine typhoid fever" at the same time; but in no instance was a nurse, master, servant, or adult of either sex connected with the establishment attacked—Why? They all lived in the same house; they all drank the same water; they all ate the same food, cooked in the same way; and indeed several of the masters slept in the same dormitories with the boys. In only one respect was there a difference, in that the masters used a totally distinct set of closets, 100 yards away from those used by the boys, emptying into a separate cesspool; the servants also used a separate set of closets, equally distinct from either masters or boys, and emptying into an equally distinct cesspool. I say then, that there is no reasonable doubt that this boy, ignorantly transferred from Birmingham, innocently became the means of infecting forty-one of his schoolmates with typhoid fever; and I think I am fully entitled to ask you to accept the correctness of these my views, for you will remember that, *in the first epidemic, boys, masters and servants were alike*

exposed to sewage-poisoning, and all were indiscriminately poisoned; while in this epidemic boys only were exposed to infection, and boys only caught the disease.

[This closely resembles the outbreak of enteric fever in the Convent of the Good Shepherd near Bristol, on which much stress is laid by Dr. W. Budd, who describes it. It is curious that in each case what is reported by Dr. Budd and Mr. Moore as an outbreak of true enteric fever following the importation of a single case, was preceded by what they have described as an outbreak of diarrhoea, and that in each establishment the drains were seriously out of order. On the assumption that the incubation period of enteric fever is always from ten to fourteen days, the case of the Sedgley Park School would be very strong; but, as there is good reason to believe that the incubation period may be as short as twenty-four hours, it is possible that the boy referred to by Mr. Moore caught his illness at the school, being, as a new comer, more susceptible than the other boys, and that the succeeding cases were rather concurrent than consequent. There remains to be explained the immunity of the masters and servants. On this point, it is to be remembered that adults are much less susceptible to enteric fever than children and adolescents, and the reporter would suggest that the evidence adduced as to the nature of the first outbreak does not prove that it was a simple diarrhoea (or what Mr. Moore calls 'sewage-poisoning,' whatever may be exactly meant by that term), nor does it exclude the possibility that some of the cases were really cases of enteric due to sewage-tainted water. On the supposition that the first outbreak was more or less severe enteric fever, the immunity of the masters and servants in the second is at once explained.—*Rep.*]

A. COLLIE, M.D.

RECENT PAPERS.

- Report on the Small-pox among the Railway Employés in Austria in 1873. By Dr. J. Keller. (*Allgemeine Wiener Medizinische Zeitung*, no. 5.)
 The Cholera Epidemic of 1873 in the Soldiers of the Vienna Garrison. By Dr. A. Perres. (*Wiener Medizinische Wochenschrift*, nos. 2, 3, 4, 5.)
 The Epidemic of Cholera in Würzburg in 1873. By Dr. H. Gork. (*Verhandlungen der Physikal.-Medicin. Gesellschaft in Würzburg*, vol. vi. part i, 1874.)

TOXICOLOGY.

SCHWERIN ON POISONING BY BLISTERING COLLODION.—Dr. Ernest Schwerin communicates to the *Berliner Klinische Wochenschrift* for November 3, 1873, a case of cantharides poisoning, the subject of which was a rather hysterical female, aged twenty-three, who had menstruated twenty days before, and, except for some nervous attacks, was in good health. A dispute with her mother threw her into a violent fit of hysteria. Her mother, in great alarm, seized a bottle which she supposed to contain a preparation of ether and valerian, and gave her fifteen drops or so on sugar. It was, however, a blistering collodion which she had taken, prepared by macerating one part of blistering fly with one of ether. The first effect was to relieve her, but in about an hour there was violent pain at the epigastrium, then cramps, and constant inclination to pass urine, with pains in the hypogastrium. Dr. Schwerin saw her about six hours afterwards. The patient was then trying to pass urine every minute: there was at times

a sort of cataleptic condition, with glazed eyes, small pulse, and repeated vomiting. Opium, camphor, poultices, and almond emulsion were prescribed. Next day the urine, though free from blood, was highly albuminous. The tongue and throat showed signs of irritation. These symptoms continued slightly for two or three days. On the fourth day the urine was free from albumen, and the patient convalescent. There were never any erotic symptoms. Dr. Schwerin concludes from this that the old view of the aphrodisiac action of cantharidin is incorrect, and that Pallé (*Journal de Brux.*, li. Août, 1870), is justified in expunging it from the list of aphrodisiacs.

[The reporter has seen some cases of poisoning by cantharides; and, although all symptoms of erotomania were absent in some, males as well as females, in others this symptom was well marked. Doubtless much depends on the dose, and on the physical and psychical condition of the patient. In Dr. Schwerin's case the dose must have been very small. The true explanation of the discrepancy may perhaps lie in the fact, that cantharidin stimulates the whole genito-urinary tract, but that the urinary organs suffer most, and in some cases bear the whole brunt of the battle. There is a naïveté and straightforwardness in the narrative of some of the older cases, which has the ring of genuine metal about it. The curious reader may consult the cases by Duprest-Rony, Dr. Chauvel, Ambroise Paré, and others, quoted by Sonnenschein in his *Handbuch der Gerichtlichen Chemie*, p. 266. There is also recorded in a somewhat scarce book called *Anecdotes du 18^{me} Siècle*, printed at London in 1785, an account of a ball given by M. le Comte de Sade, at which cantharides were mixed with the viands—particularly with some chocolate bonbons. This, although valueless as direct evidence, shows at least the current views of the day on the subject; it states: 'tous ceux qui en avoient mangé, brûlant d'une ardeur impudique, se sont livrés à tous les excès auxquels porte la fureur la plus amoureuse: les femmes les plus sages n'ont pu résister à la rage utérine qui les travaillait. Plusieurs personnes sont mortes des excès auxquels elles se sont livrées dans leur priapisme effroyable, et d'autres sont encore très-incommodées' (p. 214).—*Rep.*]

W. BATHURST WOODMAN, M.D.

RECENT PAPERS.

- Narrowing of the Larynx after Poisoning by Sulphuric Acid. By Dr. F. Fieber. (*Allgemeine Wiener Medizinische Zeitung*, no. 8, 1874.)

REVIEWS.

Handbuch der allgemeinen und speciellen Balneotherapie. Bearbeitet von Dr. Baumann, Dr. Camerer, Dr. O. Diruf (senr.), Dr. Grossman, Dr. Mess, Dr. Niebergall, Dr. Petri, Dr. Reumont, Dr. Stoecker, Dr. W. Valentiner, Dr. Th. Valentiner. Redigirt von Hofrath Dr. Th. Valentiner. Pp. 847. Berlin, 1873.

There is a good deal of difference of opinion as to how far the best professional works are produced by the labour of one author, or by the co-operation of several. If the book is to be one of moderate size, and of a practical nature, in any degree coming under the designation of handbook, there is little question that a single author can execute it best.

There are indeed reasons for co-operation, where special subjects are handled; and balneology is one of these, for we have often been struck with the very imperfect acquaintance that some of the most intelligent bath-practitioners have with any baths but their own, not merely with mineral waters of different properties from, but with those having powers closely akin to their own ones. Indeed, the most that many of them know is limited to the place that they recommend as a *Nachkur*.

On these grounds perhaps Dr. Valentiner has made an useful experiment, in bringing together the views of those whose practice is chiefly limited to the use of particular classes of waters; and we have to thank him for having brought out the whole work at once, and not having spread it over months and years, as in the case of Virchow's *Pathologie und Therapie*, which at the end of twenty years still awaits its completion. The most obvious defect of the handbook is its want of unity. The various portions of it have not been assigned with sufficient definiteness to the different authors. Hence it results that one author does not take up a particular subject, because he thinks another one will do so. He also fails to take it up, and thus it is treated imperfectly or not at all.

Some diseases are not treated under the heads to which they are usually referred in other books; and waters used for drinking are sometimes treated under baths—for instance, iodine and bromine waters under salt-water baths. It would be easy to give more examples of this nature.

In balneological books there is always a difficulty in selecting the most appropriate arrangement of the matter. The lexicographical and geographical divisions, that according to the various classes of disease, and that based on the chemical constitution and the therapeutic action of the waters, have all had their advocates. We think that Dr. Valentiner has been right in following the last arrangement, as it ought to save an immense deal of repetition. He might have been spared a good deal of needless iteration, if he had kept a more strict hand over his contributors; and it is in this respect that one writer is able to manage the subject better than a plurality. The writers of the handbook have steered pretty fairly clear of the common fault of specialists, that of praising their own waters too highly—a fault which even the sarcastic and critical Braun has not wholly escaped. A great deal of space is occupied in the discussion of theoretical questions, and pathology is often entered into more deeply than is desirable in a work of this class. The result of this is, that the accounts of individual baths are short, and indeed often not fuller than those to be found in much smaller works. There are also indications of limited practical acquaintance with localities; and indeed, as a general rule, bath-doctors do not often visit other baths than their own. Thus, the writer on Wiesbaden is not aware of the imperfect bathing arrangements of that place; and he enumerates, among practising physicians, those who have long retired from business. In like manner we are referred, at Aix-les-Bains, to Baron Despine, father and son, while the father has been dead for some time; and at Amélie-les-Bains to Dr. Pujaud, who has been dead for several years, although his establishment retains his name. In a general work on balneology we should have expected some notice of baths, besides those of Germany, France, and Switzerland; but we find none. There are indeed some good hints about sea-bathing-places

in England, but no mineral waters—not even Bath, Burton, or Harrogate are mentioned. There is not a word about Italian waters; not even about well-known ones, such as Acqui, Lucca, or Ischia. The interesting iron springs and the baths of Bormio, on the southern slopes of the Alps, are entirely ignored.

All kinds of artificial baths, mud, pine extract, vapour, sand, &c., are treated of in the most perfunctory manner. Bath arrangements and the exportation of mineral waters are scarcely alluded to. The account of climate is good so far as it goes, but is meagre. Milk and grape cures are treated of very imperfectly.

The tone of the book is often somewhat controversial, and the writing too obviously directed against Braun, who, if this work errs on the side of over-belief, for instance, in having confidence in arsenical waters, certainly runs into the opposite extreme. But in spite of all the deficiencies pointed out, and although the book cannot be recommended to a mere student of the subject, or to a busy practitioner, who has no time to read so large a work, yet these separate essays are well worthy of the perusal of any one familiar with the subject. Dr. Reumont's account of sulphur waters, and of their use in syphilis, is one of the best. The tables of analyses, all of which are reduced to decimals, have been carefully prepared.

On the whole, we fear that this work has met with a less favourable reception in Germany than it deserved.
J. MACPHERSON, M.D.

Jahrbuch für Balneologie, Hydrologie, und Klimatologie. Von Dr. E. H. KISCH. Jahrgang 1873, Band ii. Wien, 1874.

Balneologists are greatly indebted to Dr. Kisch for the admirable record with which he presents them, of the progress of balneology and its allied subjects. In fact, it is extremely difficult to be acquainted with the latest information on these subjects, without the aid of this work. The annual summaries in *Schmidt's Jahrbücher* and in *Virchow's Jahrsbericht* are the only substitutes; and though most carefully compiled, they are more brief and less varied in their contents.

A mere enumeration of some of the principal papers in Kisch's second volume for this year, will show the variety of matter treated of. There is an article on English watering places, an abstract from the English of Macpherson and the French of Labat. Dr. Pröll's experiments on the electricity of the Gastein waters are described. There are, an account of the natural *stufa* of Monsumanno near Monte Catini, which resembles the *stufas* of the Bay of Naples and of Ischia; a new analysis of the waters of Tarasp—the chief result being the proof that the Lucius and Emerita springs are identical; a fresh analysis of the waters of Ems, showing how little the springs alter, or differ from each other; a full account, by Dr. Schuber, of the Iodine waters of Hall, in Upper Austria; an elaborate dissertation on the physiological effects of kumiss, by Dr. Schnitzler of Vienna. A high value is attached to its use; but the patient, to obtain its full effects, must live almost exclusively on it. Next, a paper by Dr. Röhrig, of Kreuznach, on the absorption of gas by the skin when dry or moist; and then follows one by Professor Benedikt, of Vienna, on the balneo-therapeutic treatment of chronic nervous affections, in which he says that he agrees with the general doc-

trines of Chapman, and finds his treatment useful in hysteria, but not as yet in epilepsy. Then follow a set of bath reports from Marienbad, Teplitz, Gastein, Tarasp, Badenweiler, Schwalbach, Nauheim, and other places. Under the division of Hydrology, we have papers on the measurement of *Grundwasser*; on the essentials of good drinking water; on the value of hydrotherapy in intermittent and spleen; and other shorter papers. Under the head of Climatology, which is not treated quite as fully as usual, there are a good résumé of the latest observations on ozone, and a paper by Dr. Schreiber on the causes of intervals of cold weather in spring. The next part is devoted to reviews of some twenty recent publications on Balneology; and includes an abstract of Pettenkofer's lectures on the relation of air to clothing, dwelling, and soil. The whole concludes with a few balneological and less formal notes, giving the latest news of many baths. The table of contents thus appears to be sufficiently interesting, and should commend the work to English readers.

J. MACPHERSON, M.D.

Observations on the Pathology and Treatment of Cholera. By JOHN MURRAY, M.D., Inspector-General Indian Army. London: Smith, Elder & Co.

The author of this practical little treatise has had forty years' experience of this disease, and the work before us 'is the result.' Dr. Murray does not pretend to throw any fresh light, either on the cause of cholera or the laws that govern its propagation, but the different stages of the disease are carefully described with the accuracy of a practised observer only too familiar with the phenomena. It may be true, as Dr. Murray asserts, that it was only after the meeting of the Constantinople congress, that diarrhoea was generally allowed to be a stage of cholera and capable of communicating it in its most intense form. But it is consistent with our knowledge that, for at least thirty years before the assembling of the Constantinople congress, diarrhoea was recognised in India, if not actually as a stage of the disease, yet certainly a premonitory symptom of the gravest significance; and on this knowledge was founded the practice not uncommonly followed by careful regimental surgeons, of having frequent inspections of their men during the prevalence of an epidemic, for the purpose of detecting this symptom (generally easily done by a glance at the faces of the affected) with a view to its immediate treatment. It is equally certain that in this country Mr. Simon strongly maintained the opinion that the evacuations of persons suffering from the so-called premonitory diarrhoea are capable, under certain conditions, of propagating cholera in its most intense form.

In common with nearly all Indian practitioners, Dr. Murray has not only nothing to say in favour of the purgative plan of treatment in cholera, but is careful to teach the danger of giving purgative medicines of any kind, more especially saline or hydragogue purgatives, during epidemics. Those who have practised their profession in the hospitals of Calcutta are familiar with the fact, that English sailors, feeling heated and feverish after a debauch and exposure to the sun, frequently have recourse to 'a dose of salts,' and after its operation, are brought to the hospital passing rice-water stools, and collapsed. Impressed with the danger of diarrhoea running on into the more advanced and intractable stages of 'congee'-like stools and collapse, the author strongly insists on the necessity of 'stopping it' at

the earliest possible period, the success which attends this plan of treatment must be kept in view in considering the elimination theory by means of purgatives.

It is needless to say that our author has no 'specifics' for cholera, and we are glad to see that he condemns the too common practice of rushing to 'strong remedies' in the desperate hope of effecting a cure by their administration in inordinate doses. This tendency was strongly evinced in this country in the epidemic of 1866, and was reprobated and ridiculed by Dr. Maclean, of Netley, in two lectures which excited a good deal of attention, and had a wholesome effect at the time. The medical journals and newspapers of the period were filled with the records of 'cures' and 'successful cases' brought about by remedies of the most opposite properties. If a patient did not die, he was supposed to have been 'cured,' forgetful of the fact that a certain proportion of cases recover under a vast variety of treatment not absolutely hurtful or poisonous, and sometimes under no treatment at all. In particular we commend what Dr. Murray says on the subject of opium. The proper time for its use is in the stage of diarrhoea; it is, like everything else, inert during collapse, but is prejudicial and often fatal in its effects when reaction begins.

On the whole, we think this little treatise is calculated to do good, to guide the inexperienced in their efforts to aid nature in the struggle for life, and above all, as we have said, to discourage the rash hands of meddlesome practitioners who try to effect their purpose by a mere *tour de force*. This we take to be the great merit of the book, and a not inconsiderable merit it is.

In the present state of knowledge 'prevention' must be the great object in view; 'cure' for cholera there is none. Many valuable lives may be saved in all epidemics by prompt treatment in the stage of diarrhoea, and not a few by judicious management and good nursing after the disease has been established, certainly not by the heroic measures which are justly condemned by our author, whose opinion is entitled to great weight as that of a wise and prudent physician, who has seen as much of this terrible scourge of the human race as any man now living.

CORRESPONDENCE.

EXCISION OF THE TARSUS.

To the Editor of the LONDON MEDICAL RECORD.

SIR,—I read with interest the account by Mr. Mac Cormac of Dr. Watson's paper on 'Excision of the anterior tarsus and base of the metatarsus.' It may be within the recollection of some of your readers that I exhibited at the Clinical Society on April 26, 1872, a man in whom I had removed the second metatarsal bone, the ends of all the other metatarsals, and the articulating surfaces of the anterior row of the tarsal bones. The case is recorded in the *Transactions of the Clinical Society*, vol. v. p. 207. This operation was looked upon at the time as unique, but I see that Dr. Watson's first case preceded it in time—though not in publication. My operation was performed by making a transverse incision across the dorsum, and turning down a flap from the upper surface of the bones, a plan which seems to me more convenient than lateral incisions, as giving an easier access to the bones, and a fuller view of their condition. The division

of the tendons has not appeared in this and similar cases to be of any moment in the ultimate result of the case.

T. HOLMES.

18 Great Cumberland Place, Hyde Park, W.
May 21.

MISCELLANY.

MAGITOT ON THE DETERMINATION OF THE AGE OF THE HUMAN EMBRYO.—At the meeting of the Academy of Sciences on April 27, M. Magitot (*Gazette Hebdomadaire de Paris*, May 8), read a paper on the determination of the age of the human embryo by the examination of the evolution of the dental system. The researches of the author, as well as those of the late M. Legros, have included a large number of human embryos; forming a scale or ladder, extending from the time when the individual measures two centimètres to birth. In order to fix the chronological order of the successive facts of follicular evolution, they have been obliged to accept as primary elements in the determination of the age of the embryo, documents published by various authors on the relative conditions of length and weight. After having examined the majority of these, they have been induced to adopt as the most exact the indications furnished by MM. Littré and Robin in their *Dictionary of Medicine* (Art. *Embryon et Fœtus*), and have also been guided by the comparison of a circumstance very rigorously observed by M. Gueniot in a case of abortion at a precise date.

The whole of the observations have been collected into a table which is too long for reproduction here, and which gives the state of the dentition at various periods of the age of the fœtus.

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The London Medical Record.

WEDNESDAY, JUNE 3, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

LENTE ON THE HYPODERMIC INJECTION OF QUININE.

Dr. Frederic D. Lente has published in the *New York Medical Journal* for March, an exceedingly interesting paper upon hypodermic injection of quinine. After discussing the merits and demerits of various solutions used by himself and others, Dr. Lente says: The following formula was adopted, and has been used ever since: \mathcal{R} . Quinæ disulph. gr. i.; acidi sulphurici diluti \mathfrak{m} .c.; aquæ font. \mathfrak{z} j; acidi carbolicum liquidum \mathfrak{m} v. Solve. Place the quinine and water in a porcelain dish, over a spirit-lamp, heat to the boiling point, and add the sulphuric acid, stirring with a wooden spatula. Filter at once into a bottle, and add the carbolic acid. This gives six grains to the drachm. Even this solution will deposit some crystals at a temperature of 50° ; and, of course, at or below that temperature requires to be warmed before using. The carbolic acid also, I think, alleviates the pain of the injection, as there is but little complaint, in most cases, after the first few drops. I can recommend this with considerable confidence, so far as danger of local difficulty is concerned, since it has been used by myself and my various assistants at least one hundred and fifty times, or over three hundred insertions (each hypodermic dose consisting of at least two injections). Neither have I, nor any of the gentlemen who used it under my direction, had any serious trouble with it.* In one case, after using it twice, it produced each time a diffuse cellular inflammation of the arm, which yielded slowly to cold water applications, and I desisted, although the patient was anxious to submit to another trial, so far superior did she find this method to that by the mouth. In another exceptional case, a singular effect was produced, already noticed in this paper—anaesthesia of the part, followed by dry gangrene of a small mass of cellular tissue. This was the fourth injection of this patient, or the eighth insertion; none of the others giving any trouble whatever. Patients frequently experience a numbness of the part, sometimes lasting weeks after the operation, possibly from the effect of the carbolic acid. The injected part is usually tender for a few days after injection, when accidentally touched; sometimes inconveniently so, when the patient is at manual labour (on this account it is better to select the left arm), but it rarely incapacitates a labourer, even for half a

day. Since this solution has been used, I have met with full as many cases of trouble arising from injections of morphine, though so much smaller in bulk, as from it. All hypodermic injections, however small, will occasionally cause inflammation, abscess, and even sloughing, sometimes of a persistent character.

The question of the proper strength and composition of the solution is a vital one, as regards the ultimate success of this valuable mode of treatment; and, as it cannot be considered at all settled, I have already dilated considerably on this point, and would remark further that the inconvenience, slight though it is in a majority of cases, of introducing the needle two and occasionally three times at a sitting, and inserting sixty to ninety minims of fluid more or less irritating, is sufficient to induce the hope that a solution equally safe will be devised, which shall contain two or three times as much of the drug. It is true that by the aid of heat, applied at the time of the injection, double the quantity in the same amount of fluid may be used; and this brings up the question of concentration of the solution, which most writers have considered essential. Two ideas seem prominently to occupy the minds of those who have employed this method, both of which are probably erroneous and mischievous: one, that the solution cannot be too concentrated, provided little or no acid be used; the other, that the acid is the principal or only cause of the serious accidents sometimes attending the injections. Now, it will be found that, in cases of local trouble, more than one cause is in operation, sometimes several. Thus there may be delay in the absorption of the fluid, one portion of areolar tissue only a few inches from another absorbing more readily; this delay being also sometimes attributable to the imperfect solution of the salt, and the latter being the result usually of using too little acid.

As it respects the mode and best time for operating, the following are the author's conclusions. Having settled upon a proper solution as far as present experience enables us, there are some precautions advisable. It is important to have a gold needle, not one merely gilded. Messrs. Tieman and Co. prepare them very skilfully, and, with care, they seldom require sharpening, which may easily be done on a fine hone. The syringe and needle should be washed out after each operation, and the piston frequently oiled, as it is both stiffened and rotted by the solution. The outer and anterior portion of the arm, not too near the joints, are usually chosen for the insertions, although the outer and upper portion of the thigh present desirable localities. We have, however, injected all parts of the body, in cases where repeated injections were required. I usually make the two punctures two and a-half to three inches apart, so that the wet application, which is often desirable to prevent inflammation, may cover both. The injection should be made with deliberation. The first few drops cause more or less severe smarting, and I wait until this ceases, or nearly ceases, perhaps half a minute or a minute; then continue slowly, drop by drop, as fast as the patient can endure it, without inconvenient pain, being guided also somewhat by the rapidity with which absorption takes place, judging by the greater or less elevation of the integument around the puncture. As soon as the needle is withdrawn, I cause the patient or a bystander to put the finger over the puncture for two or three minutes, to prevent the

* Dr. Murdock has used this method to a moderate extent, and his experience is incorporated with mine. I have at different times been assisted by Dr. A. A. Smith, of New York, and by Drs. Farmington, Griffith, and Young, of the resident staff of Bellevue Hospital, who are, I understand, using this solution now in that hospital.

fluid from exuding. In case of threatened inflammation, or much soreness, I direct the patient to bind on a wet folded handkerchief or pledget of lint as a precautionary measure.

As regards the best time for the operation, the general impression seems to be that it should be done just previously to the expected paroxysm, and Dr. Moore, of Bombay, says: 'The best time is shortly before the cold fit; but it may be done during the cold stage with the effect of lessening and sometimes stopping the whole paroxysm.' I can corroborate the last observation, and shall subjoin some cases in illustration of this important point. I am not fully prepared, as yet, to say whether there may not be an advantage as regards the ultimate effect of the operation, in following the prevalent notion. But it so often happens that the severe train of symptoms attending a paroxysm of epidemic ague is mitigated, even arrested, by the injection on the spot, that, when convenient, I always give the patient the chance. But, as a general rule, I have injected without any reference to the date of the paroxysm. This point will bear further investigation. I am informed, however, by Dr. Meredith Clymer, that, in a recent report of the English army-surgeons serving in malarious regions, the verdict is decidedly in favour of administering quinine (this does not refer to the hypodermic method) during the attack.

As regards the dose, it depends, like that administered by mouth or rectum, on so many circumstances that one cannot be definite. But the variation, depending on idiosyncrasy and age especially, is not nearly so great as in the other methods. The doses of various reporters have varied from two to ten grains. The fact is that, at present, it is limited somewhat in obstinate cases by the insolubility of the drug, a dose of twelve or eighteen grains requiring of the solution here recommended two or three drachms; too large an amount of fluid except in desperate cases, where severe pain and abscesses are comparatively of little moment. My first doses were two or three grains, and the most marked results were obtained from these small doses, probably because the medicine was more largely diluted, the same quantity of fluid being always used; possibly also because the disease assumed a more obstinate type as the epidemic wore on. For the latter reason it was found necessary to increase the dose to six grains, and in a few cases to nine or ten grains. When more than six grains were employed, I usually made three injections, but sometimes used a syringe of greater capacity, and only inserted twice. When the patient has a good deal of adipose tissue, and is not particularly intolerant of the injections, forty minims may be used in one spot.

During a severe epidemic, it will usually be necessary to repeat the dose every fourteen or twenty days; in some cases every six days; and now and then every day or two. In these cases the patients are so tolerant of the injections that they care very little for them. Where the resulting soreness or inflammation is troublesome or tedious, it is better to resort, if possible, to some other treatment. During the intervals it will not usually be necessary to give any antiperiodic or tonic. In my own cases, desiring to test the value of the treatment as accurately as possible, I rarely gave any medicine, even of a cathartic nature, unless required by constipation.

BROWN-SÉQUARD ON THE LOCALISATION OF BRAIN FUNCTIONS.

Dr. Brown-Séquard, at the meeting this year of the United States Academy of Science, read a paper of great interest in relation to recent researches, which is thus epitomised in *Nature*, from advanced sheets of the report in the *New York Tribune*.

Dr. Brown-Séquard began his paper on the pretended localisation of the mental and the sensorial functions of the brain, by saying that the subject has been rendered more difficult by assumptions of physiologists upon insufficient data. Among the views which have been recently brought forward upon the localisation of nervous power in certain parts of the brain, there are two of importance: one relates to the seat of power actuating muscles, and the other is as to the seat of sensation for different nerves. In the latter particular, after noticing several exploded theories, some still pertinaciously adhered to by physicians, Dr. Brown-Séquard reviewed especially the assumption in respect to the seat of power for speech.

'Let us consider the question of the locality of the intelligence of the brain. Most physiologists are agreed that this is the grey matter of the upper parts of the brain. But the method of communication is still open to research.' (Here the lecturer drew on the blackboard a figure somewhat like a sheaf of wheat without a band around it; the stalks representing the nerves, the heads of wheat representing the cells.) 'Now you may subtract from this, by disease or otherwise, say the upper third, and still you have the nerves and the nerve-cells, and the processes can be carried on; but in the progress of such destruction downward there would eventually be reached a point where the functions of the brain could no longer exist. This view would explain the facts as we find them. But there is no case on record where the grey matter on both sides of the brain has been destroyed without the loss of intelligence, and we must regard the grey matter as the seat of the intelligence. But vast portions may be removed before the loss of intelligence becomes apparent. This I have myself tested and proved by vivisection of the lower animals.'

'Now, in respect to the locality of the power of speech. It has been said that the loss of brain power to express ideas in speech was located in a certain part of the brain. This affection is called aphonia or aphasia. There are three modes of expressing ideas—by speech, by gesture, and by writing. It is with the first only that we are concerned. Some very bold theorists have tried to locate all these powers in a particular part of the brain. Let us confine ourselves to facts. Dr. Broca of Paris has advanced the view that a certain small portion of some of the convolutions of the brain holds the power of speech. I admit that facts seem to favour this view. But we find that there is no relation between the degree of aphasia and the extent of the disease of that part, and there are cases where the destruction of those convolutions is very great, and the injury to speech very little. Secondly, we find that disease may have overtaken the anterior, the posterior, and the middle lobes of the brain, the particular convolution supposed to involve speech not being affected, and yet there is marked aphasia. Now, is some one of these lobes the locality of the power of speech? Such would be the reasoning of my opponents. We should be obliged to concede that in some persons the faculty of speech existed in one part of the brain, in

some in another, in others another, and so on *ad infinitum*. This is a *reductio ad absurdum*.

'There is the case of the paralysis of the insane, where the grey matter may be diseased on both sides of the brain. In these cases the power of speech does not seem to be involved. There are cases of aphasia where the diseased person has had the power of speech restored during delirium. The speech is coherent though the sense may not be. It is evident, then, that the faculty of speech is not actually lost in such cases; and yet we find that the third frontal convolution is actually diseased in those aphasics who talk in their delirium. But the most decisive argument is found in the cases that I have seen, where the third frontal convolution, the alleged organ of speech, has been destroyed, and yet the patients have not lost the power of speech. Therefore the theory is itself destroyed. There are fifty cases on record to show that the question of right-handedness or left-handedness does not apply in the considerations.' The lecturer here cited cases of Jacmel of Montpellier and Mr. Prescott Hewett of London. In the latter case the patient had suffered a destruction of that part of the brain for twenty years, and yet for twenty years had spoken.

'We shall now take up the question of the localisation of motion in certain parts of the brain. I am surprised at the avidity with which a certain series of facts has been accepted as proof of this theory in England. A very eminent man, of whom I should not like to say anything severe, my friend Dr. Carpenter, has accepted those views. I may say that all England has accepted them. Prof. Huxley, indeed, has written me, that he only accepted this view in part, but I cannot see how he can accept a part without accepting the whole, where even the part is incorrect. The famous experiments of Dr. Ferrier, of King's College, must here be considered. As you will see, they are not, however, conclusive. By the application of galvanism to certain parts of the brain of animals, he produced certain movements. When we do not stop to think, this would seem to prove that there are in the brain certain centres of movement governing certain parts. But it is only a semblance. A part of the facts are taken for the whole. We should know all the series before we adopt the conclusions. Let us examine the other facts.

'It is perfectly well known that the cutting away of a large portion of the brain does not produce the least alteration of voluntary movement any where. Suppose that part of the brain, say the anterior lobe, being excited by galvanism, produces a movement in the anterior limb; now suppose that part of the brain is cut away; then the anterior limb should be paralysed, for its voluntary movement is gone. Admitting that the other half of the brain should supply the place of the missing part, let us take that away also; then certainly there should be a paralysis of the anterior limbs. But there is not. This should be sufficient to invalidate the conclusions of Dr. Ferrier. But there are abundant pathological facts of this nature proving the fact beyond question. And then there are the cases of recovery from paralysis. There is no such localisation of power as Dr. Ferrier has assumed. If galvanism be applied to the severed leg of the frog, the leg will jump, although there is no brain-power in the question.

'What should have been done was to have cut the connection of parts, so that a general effect should not have been propagated throughout the brain by

the application of galvanism to a part. This would be the *experimentum crucis*. My friend Dr. Dupré of Paris has made this experiment. I made it also, before he did, but he published his before mine. But there are many other facts almost equally impressive in their character which may be cited. We find many cases where the lesion of part of the brain produces paralysis on the same side of the body, and not on the opposite side, as in the majority of cases is the rule. There is a case recorded where a ball passed directly through the brain, and it produced paralysis on the right side, instead of the corresponding side.' Here Dr. Brown-Séquard objected to having a certain class of brain-affections named after him, stating that diseases should be named from their distinctive features, and not after physicians.

Dr. Brown-Séquard then applied a similar course of reasoning to the localisation of sensation in specific parts of the brain, concluding by stating that it is evident we cannot locate the centres of either sensation or motion in specific parts of the nervous system.

OBERSTEINER ON ESTIMATION OF THE CAPABILITY OF REACTION IN THE BRAINS OF THE INSANE.

Dr. Henry Obersteiner, of Döbling (Virchow's *Archiv*, vol. ix. pts. 3-4), says that if one of the peripheral sense-organs be lightly stimulated, and the moment when this stimulus is perceived by the person experimented on be noted, it will be seen that a definite and measurable period of time intervenes, which is called the 'period of reaction.' Individual differences, by which the time of reaction is greater or less in one person than in another, have led to the establishment of a 'personal equation.' The whole 'period of reaction' may, however, be subdivided into, 1. the time necessary for transmuting the applied stimulus into nerve-force; 2. the time necessary for the stimulus to pass through the sensory nerves and the spinal cord to the brain; 3. the time which is occupied in the brain itself for converting the sensitive stimulus into a motor act of will; 4. the time required for the impulse to reach the muscles from the brain; and 5. the time required for setting free the muscular movements in the muscle itself. For the psychologist the third point is of the greatest interest, and this, following Exner (*Pflüger's Archiv*, vol. vii., p. 601) is termed the 'reduced reaction-period.' This period includes solely the events that pass in the brain, and shows how much of the time of the process beginning in the organ of sense and ending at the muscle, is taken up by the brain itself.

Dr. Obersteiner's attention has long been drawn to this 'reduced reaction-period' in the insane, with the view of getting a measure of the rapidity of the psychic events, and so a clearer picture of the greater or less facility with which the separate processes follow one another. It must be allowed that the pathological conditions of the brain allow the objection that thereby a difference in the mechanism for producing reaction enters. The instrument used is an application of an oscillating tuning-fork, simple in construction, and cheaper than most of the scientific registering instruments (made by Heinitz, of Vienna, for 2*l.*), which he calls the 'Psychodometer'—*ψυχι-δότης-μέτρον*. It consists essentially of two pieces—a platform

which has at one end a contrivance for carrying the oscillating pen, and which also has two slits to receive a smoked glass-table. The lever consists of two parts; one, the longer, being the recording pen, whilst the shorter arm is made of brass, and carries a button on the end. The swinging of the lever can be regulated by a screw. The pen is made of a piece of smooth steel, a-third of an inch wide and four inches long, so placed that the edge is uppermost, and when set swinging it does so 100 times a second. At the free end of the pen a bristle is glued on, so as, when the lever is horizontal, to just touch the smoked glass-table. There are stops placed in suitable positions to prevent the lever from oscillating too far in either direction, and the whole thing may be made fast to an ordinary table by binding-screws. The glass-table, and the stand in which it is fixed, can be worked in the slots backwards and forwards by handles. The way to use the apparatus is for the person experimented upon to place one finger on the knob and to turn his head away from the experimenter, who then draws out the platform, carrying the glass plate more or less rapidly as the circumstances require. At the very moment when by pulling the handle the pen is set free, it begins to swing and emits a distinct tone. The person experimented on marks the moment when he perceives the sound, and at once raises the index from the table by pressing the knob. The index has consequently written only so long a time as had elapsed between the generation of the sound and the marking by the finger of the operator. Since the index makes 100 oscillations in a second, each oscillation requires the one-hundredth part of a second; but since, at the first at least, the waves are large enough for estimating tenfold with ease, the one-thousandth of a second may be easily read off. If, instead of, or even together with, an impression on the auditory nerve, it be desired to estimate an impression on the hand or any other part of the surface of the body, a simple modification of the apparatus can be adopted, so that at the instant when the index begins to swing, a current of electricity is opened or closed, the notification of which by the person under experiment is made by pressing the button. Another application of the instrument consists in introducing a piece of card-paper, on which some colour is printed, in such a manner that at the moment of commencement of the lever to swing, and therefore to write, the colour is noted by the experimentee. Such coloured papers of different sorts are kept, and the plan is to say that when a certain named colour appears the knob is to be pressed as usual, but when other colours appear the knob is to be left alone. Thus the time is noted which is necessary to the conviction whether the knob must be pressed or not. A little practice for the proper adjustment of the lever is required, but the instrument is very simple, exact, and convenient, for rapidly recording a number of observations, whilst it requires no great intelligence on the part of those operated on to use it. For the solution of different questions it was first necessary to operate on sane persons, the point to determine being the knowledge of the 'reduced reaction-period,' absolute or relative, *i.e.*, the time during which the impulse starting from the apparatus, in a changed and still changing form of course, passes through the brain, and again leaves it in the form of an impulse to movement.

The first element composing the reaction-period

is that requisite for the vital force operating as impulse to impart the force necessary to be transmitted on the proper paths of the central organ. This so-called latent sense-stimulation is open to question. Exner thinks that for *the eye* it lasts about a fiftieth to a twenty-fifth of a second; for *the ear* no results are on record. Secondly, the rapidity of conduction in the peripheral nerves may be taken as 180 feet a second. Rosenthal (*Centralblatt*, 1873), has recently stated that the ordinary methods of estimating the rapidity of conduction after irritation of sensory nerves are not satisfactory, and that it is much quicker. The conduction of sensibility in the cord is placed by Exner at eight mètres a second, but this includes not only the simple longitudinal conduction, but also the action of the ganglion-cells. It is quite possible that the dark-bordered nerve-fibres of the cord conduct as quickly as the peripheral ones, and that the central cells cause the delay. Exner finds again that the rapidity of motor conduction may be taken at 11 to 12 mètres a second, the reduced rate being probably due to the cells in the anterior columns. The duration of the 'latent stimulation' in the muscles of the frog is about $\frac{1}{100}$ of a second; in the human subject it has not been measured, nor is it known whether individual differences occur. From many observations (some of which are recorded), it appears that our perception of time is enough to estimate mistakes of a few hundredths of a second.

Trials were made with persons in different bodily states, *e.g.*, when requiring rest, the instrument showing the 'reaction-period' to be 0.188 second instead of 0.134 second; or in another troubled with a pain that to some extent occupied his attention, the average being 0.175 second as compared with 0.134 second. Most striking are the contrasts between the numbers obtained when conversation was going on in the room, and during the pauses—in the former case being 0.260 second, and in the latter 0.134 second. When a little practice has been acquired, the reaction to impulse assumes such a beaten path that farther reflection is unnecessary for setting free the movement. And this appears to be a sort of reflex process, the place of which is in the brain, not in the spinal cord. The cortex of the brain as the seat of consciousness is not necessarily brought directly into play, but still exercises a great influence on the normal course of the reaction. The difference must be clearly made between the reflex actions of the cord and those arising from the higher brain-ganglia; the former are as a rule of a simpler kind, and are in no degree, or only a very slight one, dependent on the will; the latter are more complicated and more strikingly under control of the will, although they may become quite independent of it. Age has a marked influence; for although Exner found that the rapidity of nerve-conduction for young and old people is the same, yet the psychic process is somewhat prolonged in old persons. Another factor which influences the rapidity of reaction is social position. Persons of a lower grade have a longer reaction-period and greater differences than those in higher position, because they (especially the men) are less in the habit of attending to their own psychical processes. To do away with reflex action entirely, and to examine the reaction of the upper brain-centre purely, *e.g.*, consciousness, attention, will, the coloured papers were used. All colours are not perceived with equal rapidity; naturally, strong colours are quickest noted, and red sooner than yellow and white. The instrument can be applied

to the insane, and he gives tables of twenty persons, two women and eighteen men. The chief points to determine are, whether in many forms of brain-disease the transference of a sensory impression to a motor-nerve is delayed or hastened, and what and how constant is the retarding power which the insane can exert? Is a sinking of the reaction-period below the normal to be proved in certain conditions of exaltation? Experience is given of a person, aged twenty-four years, with large delusions, whose estimated period was 0.199 second, which is a higher number than that given by healthy men. It does not seem that the brain-capacity as regards rapidity of the course of psychic processes is directly lowered, but that the hallucinations and delusions manifest such a preponderance over the other processes that the attention is diverted and the reaction-period delayed nearly threefold. Other questions are gone into, but the results may be thus summarised.

1. In the insane, acceleration of the reaction-period is not proved.

2. There is always more or less prolongation of the reaction-period in the insane, shown either as an increase of the medium period, or directly caused by a rise in the minimum.

3. A rise in the minimum time denotes a deep-seated lesion in the brain; and, though not demonstrable in primary forms, was easily so in conditions of debility.

4. Rise in the medium period, conjoined with great differences among the single reaction-details, is a sign of loss of power of concentrating the attention, or of the preponderance of other mental conditions.

5. The course of the disease is characterised by changes in the reaction-period.

6. Both the prolongation of the period and the great differences between the separate experiments point to a diminished susceptibility of the brain, which can be easily expressed in figures.

T. CLAYE SHAW, M.D.

COMPARATIVE PATHOLOGY.

LEUCOCYTHÆMIA IN DOMESTIC ANIMALS. BY PROFESSOR O. BOLLINGER OF ZÜRICH.*

(Concluded from page 321.)

In contrast to the result of the above-mentioned inoculations, I believe that leucocythæmia in the dog, considered in one direction, tends to confirm Virchow's opinion as to the origin and spread of the disease. In the spleens of dogs, there occur with unusual frequency—according to my observations, made alike on healthy and on diseased animals, in at least ten per cent. of all dogs—true lymphomata. It is extremely probable that these form the starting-point of leucocythæmia: in the case already related, the splenic nodules were certainly present at the beginning of the disease. In confirmation of this assumption, I can bring forward a second case observed in a dog, affording an instance of leucocythæmia in the incipient stage, which rarely comes under observation.

2. A very large old male dog was brought to the veterinary school in this place to be killed. It did not show any special signs of disease, and shortly

before death ate abundantly with good appetite. The body was examined on May 6, 1871.

There were splenic leucocythæmia, and a large lymphoma of the spleen. The relation of the white to the red blood-corpuscles in the general circulation was 1 to 30 or 40; in the blood of the splenic vein, 1 to 10 or 15.

The animal was rather thin. The lungs were of normal extent, rather emphysematous, and strongly pigmented. On the left side were some subpleural hard bodies as large as pins' heads, which on microscopic examination were found to be bony deposits. The air-passages were normal. There was no remarkable change in the heart. Above the aortic valves, near the mouth of the coronary arteries, there was a prominence of the size of a lentil, with a rough surface, and mostly calcified: around it was distinct atheromatous thickening of the inner coat. On opening the abdominal cavity, a tumour nearly as large as a child's head was observed; it was covered by the great omentum, lay in front of the left kidney, and proceeded from the posterior surface of the upper part of the spleen. While the spleen itself was in other parts normal, containing little blood, of a pale flesh-red colour, and moderately firm, the tumour was of soft elastic consistence, of a shining dark violet aspect, with the peritoneal investment much distended and at several points closely adherent to the omentum. On section, the tumour was found to consist of a spleniform dark brown-red tissue of slight consistence, having embedded in it numerous deposits, mostly miliary, partly whitish, partly grey and diaphanous; they differed in no respect from the normal Malpighian bodies. In some parts towards the interior, these greyish white deposits predominated so much over the remaining tissue as to become confluent. On microscopic examination, the whole tumour showed all the elements of the normal spleen, but in place of the fine Malpighian bodies, there were large masses of lymphoid substance of similar structure. The spleen itself was remarkable for its great richness in granular blood-colouring matter and cells containing blood-corpuscles, as well as for a great amount of small and large fat-drops. The blood of the splenic vein was fluid, and of a clear red colour, and contained about one white corpuscle to ten or fifteen red ones. There was a slighter increase of the white corpuscles in the blood of the coronary veins of the heart, where the proportion was about one to thirty or forty. The liver was of a pale coffee colour, of normal size, and rather anæmic. The kidneys were of usual size; the capsule was easily removed, and on the surface beneath it were some cicatricial contractions. The substance of the kidneys was of a clear brown colour, and fragile; on microscopic examination, there was found to be marked fatty degeneration of the epithelium of the urinary tubules. The bladder was full of clear yellow urine, having a neutral reaction, and throwing down a flocculent deposit of albumen on being heated. On microscopic examination, instead of the cylinders that were expected, there were found numerous round nucleated cells, having the appearance of colourless blood-corpuscles, and a few spermatozoa. The mucous membrane of the bladder and urethra was normal. The stomach and intestine did not present any remarkable change. There was no enlargement of the lymphatic glands anywhere.

This case of simple splenic leucocythæmia, in which, besides the large lymphadenoma of the spleen,

* Virchow's *Archiv*, Band lix. Hefte 3 and 4.

there was only a moderate increase of the colourless blood-corpuscles, can without doubt, be applied in the direction indicated above. The disease was seized in its early stage, before it had gone on to metastasis, and to leucocythæmic disease of other organs. The remarkable amount of colourless blood-corpuscles in the urine, while the urinary passages were in a normal state, may perhaps be attributed to escape of the too abundantly formed cells into the diseased renal tissue; yet the simultaneous occurrence of spermatozooids in the urine indicates that there might possibly have been another source for these cells.

A further case of lieno-lymphatic leucocythæmia in the dog has been observed by Siedamgrotzky of Dresden (*Bericht über das Veterinärwesen im Königreich Sachsen für das Jahr 1871*); so that, in all, three cases of leucocythæmia in the dog have been fully described. The essential features of the case referred to were the following.

A four-year old spaniel, which had suffered for some time from loss of appetite and from diarrhoea, died four days after admission into the veterinary hospital. A large firm tumour had been detected in the abdomen by palpation. At the necropsy, the spleen was found to weigh about 2½ lbs; it was much enlarged, and was covered with flat projections on the surface. All the lymphatic glands, especially the mesenteric, were remarkably enlarged; as were also the tonsils. The proportion of white to red corpuscles in the blood was 1 to 15. There were sanguineous effusions in the spleen, on the pericardium, in the mucous membrane of the tonsils, and on the gums.

Siedamgrotzky also describes a slight degree of lieno-lymphatic leucocythæmia as having been found in a cat which had died of internal hæmorrhage. There was remarkable hyperplasia of the lymphatic glands, and the spleen was doubled in size.

With regard to other animals, there are observations on the occurrence of leucocythæmia in pigs and horses, to which I will briefly refer.

In the pig, the following three cases have been described.

Leisering (*Bericht über das Veterinärwesen im Königreich Sachsen, 1865*) relates a case of leucocythæmia in a pig, whose spleen, liver, mesenteric glands and blood, showed corresponding changes. Further details are wanting respecting this case, which was the first observed, and was evidently one of lieno-lymphatic leucocythæmia. Fürstenberg (*Berliner Klinische Wochenschrift, 1870*) describes a case of leucocythæmia in a pig, with enlargement of all the lymphatic glands, the spleen, and the liver. The spleen was more than two pounds in weight; the liver, which was studded with leucocythæmic deposits, weighed more than eight pounds. There was deposition of white corpuscles in the marrow of the bones. The blood was of a clear chocolate colour; the white corpuscles were enormously increased, their proportion to the red being 2 to 1.

In the case of splenic leucocythæmia in the pig to which I referred at the beginning of this article, the spleen was much enlarged, weighing 3½ pounds. There was remarkable enlargement of the kidneys, with leucocythæmic infiltration and extensive hæmorrhages. Leucocythæmic deposits were found in the liver and lungs. There was increase of the white blood-corpuscles, their proportion to the red being 1 to 5. The blood was of a clear red colour and watery. Whether the lymphatic glands were

affected, could not be ascertained. Microscopic examination of the hardened organs gave the following result. The spleen was in a state of hyperplasia, and its tissue presented exactly the same characters as in splenic leucocythæmia in man. Besides the abundant deposit of lymph-cells, there were great increase and thickening of the normal elements of the spleen. In the lungs, the chief seat of the leucocythæmic proliferations was the connective tissue sheaths of the arteries and bronchial tubes. The liver not only showed a remarkable lymphoid deposit in the connective tissue between the acini, but also in the acini themselves there was so great a deposit of lymphoid cells, that their number exceeded that of the liver-cells. Finally, the kidneys were enlarged to more than double the normal size, and were studded with hæmorrhages; they contained so many lymph-cells that, under the microscope, the organ presented the appearance of a lymphatic gland, the remains of the normal kidney being discoverable at points only in the form of urinary tubules and Malpighian bodies.

A number of cases of leucocythæmia in the horse are recorded in literature; but I pass them over, as I have not been able to convince myself that they were cases of idiopathic leucocythæmia. In the meantime, they all might, with greater justice, be classed among those symptomatic and transient forms of leucocythæmia which, following Virchow, we designate leucocytosis. Considering the known irritability of the lymphatic system in the horse, and the corresponding liability in this animal to inflammatory affections of the lymphatic vessels and glands, it may be supposed that such leucocytoses, which consist in a temporary increase of the colourless blood-corpuscles, are of frequent occurrence; and this is indeed observed in a host of inflammatory and other diseases affecting the horse, such as glanders, farcy, &c. After large blood-lettings, the increase of white blood-corpuscles in the horse may go so far, that the coloured and colourless corpuscles appear nearly equal in number.

The cases above related establish the complete agreement of leucocythæmia in domestic animals, especially the dog and pig, with the disease in man. The simple splenic, as well as the lieno-lymphatic and myelogenic forms of leucocythæmia, are found in these animals. This agreement extends also to the leucocythæmic changes in the liver, kidney, and lungs, and to the tendency to hæmorrhage. Hence it may be asserted that leucocythæmia, as observed in dogs, pigs, and cats, is identical with that of man; a fact which I can confirm by numerous observations on leucocythæmia in the human subject, which I was enabled to make under Buhl's direction in the pathological institute at Munich.

With regard to the etiology of leucocythæmia in man, it seems further to follow, from this agreement in character, that we must hesitate to accept as causes such conditions as syphilis, intermittent fever, &c., which certainly do not operate in animals. On the other hand, observation of the disease in domestic animals shows that certain causes of it are as yet completely hidden from our knowledge.

PATHOLOGY.

NOTHNAGEL AND OTHERS ON PRIMARY LESIONS OF THE ENCEPHALON AND CONSECUTIVE LESIONS OF THE LUNGS.—The study of the influence exer-

cised by the lesions of the nervous system, and in particular of the encephalon, in the production of secondary lesions in the lungs, is again attracting attention in consequence of a paper by M. Nothnagel and some facts communicated by MM. Baréty and Ollivier to the Parisian Society of Biology, and reported in the *Progrès Médical* of May 2. M. Nothnagel thus summarises his experience. 'When a certain tract of the upper surface of the brain of a rabbit, in the vicinity of the superior fissure there situated is wounded, if it be only with a needle, special disturbances ensue, especially interstitial pulmonary hæmorrhages, often so abundant as to fill the entire lung.' Dr. Brown-Séquard has observed something of an analogous nature: but after lesion of the base, and not of the upper surface of the brain.

M. Baréty has related a case in no. 17 of the *Progrès Médical*, which approximates to a certain extent to M. Nothnagel's experiment, in so far that there was meningeal hæmorrhage filling the convex surface of the right hemisphere on the one hand, and on the other congestion and subpleural and parenchymatous apoplexy of the left lung.

Cases, however, of this kind, by reason of injury of so serious a nature as to cause sudden death, have not the interest attaching to facts observed during a longer or shorter space of time, relating to spontaneous lesions, such as hæmorrhage or softening of the brain. Hypothetical as it is in relation to facts of the first-named order, the pathogenic influence of the encephalic focus can scarcely be disputed in regard to the second.

M. Ollivier relates, in no. 16 of the *Progrès Médical*, the history of a patient who succumbed to hæmorrhage of the right corpus striatum, with ventricular effusion, and hæmorrhage in the pons Varolii. In this case there was 'a noticeable amount of pulmonary congestion.'

An account of the history of this question was given last year in the *Progrès Médical* for 1873, p. 65. The experiments of Dr. Brown-Séquard were there mentioned. They show that lesions of the base of the encephalon, and especially of the pons Varolii in the neighbourhood of the median peduncles of the cerebellum, were accompanied by pulmonary hæmorrhages. Finally, after having affirmed that different writers, as Rostan, Cruveilhier, &c., had in their works given prominence to the frequent occurrence of pulmonary affections in diseases of the encephalon, stress was laid on a particular point, viz., that M. Charcot had added to those hitherto scattered inco-ordinate facts other facts observed with great care, and that he had for the first time grouped and interpreted them in his lectures on trophic disturbances. Since that time the researches which have been published, from those of Mr. Smith* to the more recent ones of MM. Baréty and Ollivier are interesting from various reasons, and help to confirm the ideas put forth and developed by M. Charcot. Now, however, that the facts are numerous and that the relation between cerebral and pulmonary lesions is well established, it is to be desired that observers should only bring forward precise and well-considered facts, and should not content themselves with details of a more or less precise nature. It is likewise important that lesions which, properly

speaking, are only concomitant changes, or even lesions which have no relation with lesions of the encephalon, should not be confounded with lesions of this nature.

LEOPOLD ON THE CHANGES OF FORM IN THE PELVIS THROUGH CONGENITAL OR ACQUIRED DISLOCATION OF THE THIGH.—Dr. Leopold (*Archiv für Gynæcologie*, vol. 3), was able to study the changes which occur in the form of the pelvis through luxation of the hip-joint, first in the case of the pelvis of a girl half a year old who died of marasmus, with congenital dislocation of the hip-joint, and secondly, by the careful investigation of several specimens of this form of pelvis (called by him 'luxation pelvis') which he found in the pathological and anatomical museum in Leipzig. By a careful study and comparison of these pelvises with the cases already described, the author finds that a congenital unilateral dislocation of the hip-joint produces quite another effect on the pelvis in relation to the position of the sacrum, lower lumbar vertebræ, and of the symphysis pubis, as well as in the size of the half of the pelvis on the luxated side, compared with the effects of an acquired unilateral dislocation of the thigh, differences which till now have not been clearly pointed out. Of course, whether the limb had been used or not before and after the luxation must make a difference.

In the chapter on congenital luxation, Dr. Leopold describes the pelvis (with luxation on the left side) of a girl half a year old, who of course had not walked, and the following are his chief results.

1. The sacrum tended towards the left side (dislocated side).
2. The left ilium was as large as the right, but was placed more vertically.
3. The left pubic arch was shorter than the right.
4. The left acetabulum was shorter than the right; in consequence, the parts of the pelvis on the left side were more compressed together.
5. The symphysis pubis was directly in front of the promontory.
6. The left half of the pelvis (luxated side) was *in toto* the narrower, the whole pelvis was asymmetrical, not displaced, but completely inequilateral.

With this pelvis the author compares the pelvis of a grown-up person, who had also congenital lateral dislocation of the hip on the left side, and who had used the extremities for walking. Resemblances were detected in the tendency of the sacrum towards the luxated side; differences, however, in the widening of the half of the pelvis of the affected side, through use of the limbs.

In the second chapter, unilateral acquired luxation and its effects on the pelvis are treated of, both when the limbs have been used for walking and when they have not been so employed, whether the patient at the occurrence of the luxation was young or grown up. He describes and figures amongst others two new and very interesting pelvises, the one with coxitis of the left acetabulum, consecutive luxation of the left thigh backwards, ankylosis of the right hip-joint, and probably ankylosis of the right sacro-iliac symphysis, and the other with right-sided luxation, and extensive rachitis in a young person. The latter pelvis showed, through the luxation, a pronounced oblique displacement and oblique narrowing.

After comparing the collective peculiarities of the pelvises with congenital and acquired luxation, he arrives

* 'De la Valeur pathogénique des Maladies cérébrales au point de vue des Affections pulmonaires.' (*Journal de Médecine de Bruxelles*, 1871, tome liii.).

at the following results and important points of difference.

1. The congenital, as well as the acquired luxation, produces distinct change in the pelvis, according as the limbs have been used for walking or not, whether the individual was young or old on acquiring the luxation, and whether the luxation was occasioned by accident or by inflammation. In each case luxation produces strongly pronounced changes. These are, however, different in the congenital and in the acquired luxation. In the former case, the changes vary according as the limbs have been used or not. It is quite the same in the acquired case; but here it depends materially upon whether the luxation happened before or after complete ossification of the pelvis.

2. In all pelves in common, the atrophy is of the luxated half. The use of the limbs increases in all cases the transverse diameter of the outlet and inlet of the pelvis. Non-use makes the inlet narrower in young pelves with congenital luxation; in the other pelves the inlet is made wider. The outlet is always narrower.

3. The sacrum tends in the acquired luxation towards the luxated side, whether the lower extremities have been used later or not. Quite the same in the acquired form when the accident occurs early, then a high degree of atrophy occurs if the legs have not been used. In all other cases the sacrum tends towards the sound side, but remains tolerably straight, according to the occurrence of the luxation and the use of the extremities. The want of symmetry of the sacrum is directed according to the degree of atrophy, either according to the natural disposition, by pronounced retardation in development, or by pressure and counter-pressure of the body-weight.

4. The pelvic half on the luxated side is therefore narrower in a young pelvis with congenital luxation; the same occurs in young as well as in adult pelves, where the luxation has been acquired in youth, and no attempt has been made to walk; but in all other cases, on the contrary, it is wider.

5. The position of the symphysis pubis is different accordingly. If the luxation occur early, and no attempts at walking have been made, the symphysis pubis stands either directly in front of the promontory or it is moved towards the sound side. If the luxation occur after completion of the pelvis, and no attempts at walking have followed, the symphysis will, with the widening of the luxated side, be drawn a little towards the side. When, on the contrary, the extremities have been used, then it always inclines towards the affected side.

6. The acetabulum of the sound side, through use of the extremities, is pressed upwards and forwards, and more or less into the cavity of the pelvis; that of the luxated side more outwards, backwards, and downwards.

7. The form of the entire pelvis is inequilateral, and that either not displaced obliquely, or obliquely displaced but not narrowed obliquely, at least in a very slight degree, or pronouncedly obliquely displaced, and much narrowed obliquely. The finer differences between these latter forms of pelvis are to be found in the original.

WM. STIRLING, D.Sc., M.B.

in which Professor Guillery was called upon to visit a young girl labouring under retention of urine, her usual medical adviser, M. Grégoire, being at the time absent. Upon Dr. Guillery's arrival, a cyst, which the patient had just evacuated from her bladder, was presented to him. With the catheter, Dr. Guillery removed some turbid urine which, with the cyst and a small bone, was brought to Dr. Glüge by the patient's father. The urine did not contain any pus, but deposits of urate of soda. Dr. Guillery, who found in the cyst a completely urinous odour, entertained no doubt as to the tumour having been emitted by the urethra. There was no effusion of blood.

Dr. Glüge, however, had seen a tooth attached to a calculus in the bladder of a woman, who had been operated upon, and at whose necropsy a dermoid and hairy cyst of the ovary was found communicating with the bladder.* But I had never known a case of a cyst voided from the urethra. However, the details communicated to him by Dr. Grégoire, formerly a military surgeon, left him no longer any doubt.

In the evening of June 11, Dr. Glüge was requested to attend Mdle. M—, about thirty years of age, suffering under retention of urine. She was of a delicate constitution, but ordinarily of good health. She said that since morning she had been suffering much in the lower part of the belly, and was unable to pass any urine, save a few drops at a time, and by making great efforts; that in the few drops of urine that escaped there were little clots of blood. The hypogastrium was swollen and was painful when pressed. A vaginal examination barely permitted the introduction of the tip of the finger, in consequence of the existence of the hymen. The catheter drew off a quart of urine, opaque, but not containing any trace of blood, and the patient immediately felt relief.

On the morning of the 12th, she had not been able to pass any urine. The catheter brought off somewhat less urine, of the same aspect as before. In the evening, after some fruitless attempts to pass urine made by the patient, Dr. Glüge was called in. Catheterisation was this time less easy; the instrument passed through the canal with difficulty, as it had become very sensitive, probably from a swelling of the urethral mucous membrane.

On the 13th, the abdominal pain was more tolerable; the hypogastrium was less distended; she had a sensation of pressure in the urethra. Dr. Glüge recommended a sitz-bath, prolonged as much as possible. It was continued during four hours. After a lapse of about an hour and a half, the patient not being able to endure any longer the violent pains in the urethral canal, Dr. Guillery was sent for, in Dr. Glüge's absence. A short time before his arrival the patient had ejected the cyst by violent effort. From this moment the urine flowed naturally, and on June 17 the patient retained only the remembrance of her pain.

The cyst was ovoid; its width was about 3 centimètres, and its length 4½ centimètres; the thickness of the wall was from 2 to 3 centimètres. The surface was wrinkled, with a velvet-like covering, easily detached, and composed of polygonal cells, with

* In a remarkable case, described by Sentin (*Encyclop. des Sciences Médicales*, published by M. Marinus, Brussels, 1838, p. 307), the tooth was implanted in the calculus, of which it formed the nucleus.

GLÜGE AND DANZEL ON DERMOID AND HAIRY CYSTS EXPELLED FROM THE URETHRA AND RECTUM. — Dr. Glüge relates (*Bulletin de l'Académie Royale du Belgique*, tome iv. no. 6) a case

nuclei. Under this epidermic layer was seen the dermis, with its numerous follicles widely opened, from which projected long blond, sometimes brown hairs, of a perfect physiological structure, with bulb, cortical and central substance, and sebaceous glands attached to the sheath of the bulb. Their length was from 2 to 3 centimètres. The dermis consisted of a very dense connective tissue. No sudoriferous glands were found in the portions examined. The inner surface of the cyst was lined with a thin, smooth, serous membrane, formed of connective tissue, and covered with small, round cells. The small bone which the cavity contained was of lenticular form, of uneven, yellowish surface, its structure and consistency recalling those of cement. The nature of the liquid which the cyst contained could not be ascertained.

In conclusion, Dr. Glüge draws attention to two facts. There was no hair in the interior of the cyst, and no sebaceous matter. Usually it is in the interior of the dermoid cysts that the fine or fixed hairs are found. Evidently the cyst was formed by parasitic inclusion, like those observed in virgins at the age of puberty, and even in men. It is probable that some communication was established between the ovary and the bladder in this patient, through which the cyst made its way. He does not think that a case analogous to this exists in the annals of science.

At the recent meeting of the Surgical Congress in Berlin, Dr. Danzel, of Hamburg, exhibited a tumour which he had removed from the anterior aspect of the rectum, about three inches from the anus, in a woman aged twenty-five. The tumour was about the size and shape of a hen's egg, but rather more spherical. It was covered with skin of normal structure, and with long hair, which projected in a great tuft a couple of inches from the anus, presenting a most extraordinary appearance. Masses of hair were frequently discharged *per anum*, and on the patient first calling to see Dr. Danzel, she showed him one of these masses. He fancied she was malingering. The tumour was fibrous in structure, and contained two fully formed teeth.

WILLIAM MAC CORMAC.

BROCHIN ON THE HISTORY OF DROPSIES.—According to M. A. Brochin (*L'Union Médicale*, April, 1874), the definition of dropsies generally accepted is incomplete, and, adopting the views of Professor Sée, he would replace it by the following. Dropsy is a non-inflammatory (*i. e.*, non-neoplastic) process constituted by the accumulation in the natural cavities, or in the interstices of the connective tissue, of a liquid ordinarily serous, rarely sero-fibrinous. This definition includes three necessary conditions to characterise a dropsy—viz., 1, Its seat in the natural cavities and in the interstices of the cellular tissue; 2, The nature of the fluid; 3, The absence of inflammation. These three conditions are accepted by M. Brochin from which to demonstrate the mechanism and mode of formation of dropsies.

On this point, and as a *résumé*, Professor Sée admits three great classes of dropsies:—

1. Dropsies due to lesions of the solids (affections of the veins, affections of the heart).
2. Exosmotic dropsies (the exosmosis being due to subalbuminosis).
3. Neuro-vascular dropsies, comprising three groups:—*a.* Dropsies arising from cold; *b.* Dropsies due to scarlatina; *c.* Dropsies caused by atonic

dilatation of the vessels. (Very weighty objections can be and have been made to the teaching of Professor Sée on this subject.) WM. ALLINGHAM.

DISEASES OF CHILDREN.

ASHFIELD ON AN EPIDEMIC OF MORBUS BULLOSUS NEONATORUM.—Dr. Ashfield reports (*Archiv Gynaekol.* v. vol. i.) that an epidemic of morbus bullosus neonatorum occurred in the Lying-in Hospital at Leipzig, during the months of July, August, and September, of 1872. Its first appearance was in a premature child, the offspring of a badly nourished mother, but perfectly free from all traces of syphilis. It next attacked a healthy child sixteen days later; the children born between, escaping. The exceptions soon became fewer, until finally, every child born became affected. The mothers of the first two were the only weakly ones; the children varied much; some were remarkably healthy, others sickly. The fine children at first escaped, but when the epidemic was at its height all were equally liable. The eruptions never appeared before the second day nor later than the fourteenth day. It was thought that the infection took place at birth, and that the period of incubation was from three to four days. Until the eruption came out there was no elevation of temperature, nor any signs of malaise. It began as a rule, in the neck or groins, spreading to the head, face, and belly. Its duration, with few exceptions, was from one to fifteen days. The bullæ increased in size very rapidly; one, of the size of a pin's head in the morning would be as large as a sixpence in the evening; some were larger than a crown. The abdomen and thighs were the seats of the largest. No parts seemed exempt, except the palms of the hands and the soles of the feet. There was slight fever when the eruption was out, and it was not unfrequently accompanied by ophthalmia. No cases were fatal. Only one mother was attacked with a like affection; she had pyæmia. A similar epidemic occurred in the city and the environs. The author believes it to be contagious, and dependent upon some miasmatic germ. He discards the name of pemphigus, as that disease is invariably connected with some constitutional affection. W. C. GRIGG, M.D.

PONCET ON OSSEOUS LESIONS IN INFANTILE SYPHILIS.—Dr. A. Poncet (*Progrès Médicale*, 1874, p. 237) gives details of the post mortem examination of twelve syphilitic infants. In nine cases the bones were found to be diseased in the special manner which was pointed out by Wegner, some years ago. In an early number of the LONDON MEDICAL RECORD there was a full account of the observations of Wegner, Parrot, Waldeyer, and others. Poncet's investigations do no more than confirm the results already obtained. SAMUEL GEE, M.D.

SURGERY.

SPANTIGATI ON ELASTIC COMPRESSION.—In a communication made to the Turin Academy of Medicine and Surgery, on March 6, 1874, Dr. Spantigati (*Giornale della Reale Accademia di Medi-*

cina di Torino, 20 Marzo, 1874) refers to Dr. Grandesso Silvestri's claim to be the originator of the use of elastic compression in surgery, which he seems to consider established. He then gives an account of four cases, in two of which immediate amputation of a limb was performed. The first was a man aged fifty-seven, who had received a wound in the lower part of the left arm from a weapon loaded with shot, and accidentally discharged at a very short range. The entrance-wound was comparatively small, and situated at a short distance above the internal condyle; about two inches above the external condyle there was an enormous laceration, on the posterior and outer aspect of the arm. The bone was broken into many fragments, while the muscles, nerves, and vessels, were much lacerated. The patient was collapsed and also under the influence of alcohol, to the use of which he was addicted. It was deemed advisable to postpone amputation till the following morning. The elastic bandage was not applied over the lacerated structures; the elastic tube was merely fastened round the arm, close to the axilla. Not two ounces of blood were lost during the operation. The patient, however, never rallied, and died some hours later of serous apoplexy.

The same night a young man, aged twenty-four, was admitted. His foot and leg had been crushed by a wheel. The ankle-joint was completely destroyed, and the bones of the leg and foot comminuted. It was deemed undesirable to make 'expulsive compression,' but the elastic tube was applied to the lower third of the thigh. The limb was then amputated through the upper third, and a very small amount of blood was lost. The patient remained prostrate during twenty-four hours, and then there was considerable reaction. Two days after the amputation gangrene appeared in the flaps, and spread as far as their bases. With the aid of antiseptic applications, the slough separated; and the patient finally recovered. The writer concludes that in cases like these, where the expulsive bandage cannot be used, the tube alone may, with advantage, be fastened round the limb.

The next case was that of a woman thirty-three years old, who fell on her right side in jumping a ditch, injuring the right ankle-joint. Some time afterwards, in descending a ladder, she again injured the foot; and not long afterwards she was admitted into the hospital with suppurative inflammation of the ankle-joint. There were abscesses, sinuses, and much thickening around the joint. It was determined to amputate the leg. An elastic bandage was applied from the toes up to the middle of the thigh, where the tube was fastened. The limb was then amputated by the circular method, without the loss of six drops of blood. The cartilages of incrustation had been removed from the surface of the ankle-joint, and the ligamentous structures softened. The tarsal joints were also diseased. The patient recovered quickly, and without any accident. The writer calls attention to the completeness of this hæmostatic means in amputations, and to the fact that expulsive compression may be safely used in cases where, as in this one, there are purulent collections. He does not apprehend any risk of introducing septic material or pus into the circulation; he believes this to be mechanically impossible.

The next case was that of a man aged thirty-seven. A year before, he noticed that one testicle had become larger than the other; and was seized with lancinating pains. Later an abscess formed, which

was opened. It did not heal, and when he was admitted a fungating mass, of the size of the fist, projected from it, with a large cavity in its centre, secreting a fœtid pus. The inguinal glands were not engaged, and the case appeared to be one of simple fungus of the testicle. An incision was made over the cord; the vas deferens and nerves were separated from the vessels, beneath which a silver probe was passed, and a piece of elastic thread tied over them, as in acupressure. The parts were now divided at a lower point, and the tumour removed. In this way, the inconvenience of tying the cord *en masse* was avoided. The ligature dropped off after three days, and the patient made a good recovery.

The author concludes that elastic compression is worthy of being retained as a powerful aid in the practice of surgery, and that great praise is due both to Dr. Grandesso Silvestri, who first proposed and practised the method in Italy, and to Dr. Esmarch, who diffused and more largely applied the method.

WILLIAM MAC CORMAC.

WOLFF ON RESECTION OF THE HIP-JOINT.—At a meeting of the Berlin Medical Society (reported *Berliner Klinische Wochenschrift*, Sept. 8, 1873) Dr. J. Wolff presented a little patient, three and a half years old, on whom, nine months before, he had performed excision of the hip-joint. The disease commenced when he was a year old; abscesses formed; the head of the bone became carious, and all the symptoms of advanced hip-disease manifested themselves. The operation was performed on December 16; the head and trochanter were removed; the acetabulum was rough, and its surface also required removal. A drainage-tube was then inserted, and the limb put up in gypsum with a wire splint, narrow opposite the wound, but broad enough to embrace the pelvis above, and the thigh and leg below, on the posterior aspect of the body. In front, the thigh and pelvic portions of the gypsum were subsequently united by an isthmus of wire. This splint was carefully shaped beforehand, so as accurately to fit the limb. The progress of the case was very satisfactory. At the end of six weeks the gypsum was removed, and Taylor's apparatus applied. Although the wound was not quite healed, the child was immediately able to stand, and, supported by the hands, to move about the room without pain. There was no appreciable shortening of the thigh. In some subsequent observations on the case, the author points out that in Leisrink's collection of 162 operations performed, on account of suppurative inflammation of the hip, the mortality was 63·6 per cent. This may be much diminished, Dr. Wolff thinks, by a more perfect method of after-treatment, and particularly by the application of a splint previously moulded accurately to the shape of the limb. In order to accomplish this satisfactorily, it is necessary to take a plaster cast of the parts. The writer expresses a strong preference for Langenbeck's method of operation, as by it the seat of the disease is readily reached, and drainage is amply provided for. A gypsum and a wire splint maintain perfect immobility of the limb in extension. After some weeks, when the wound begins to cicatrise, Dr. Wolff considers the use of Taylor's apparatus an improvement of immense value. It maintains the extension, and allows the patient to move about at a very early period; in the present instance, within two months after the operation. With reference to development of the bone; the

writer believes that the epiphysal cartilage does not anywhere play a great part, and that in the upper end of the femur it has absolutely no influence at all. It is known, for instance, that the trochanter minor remains throughout the development of the femur at the same relative distance from the head of the bone, which would not be the case if new bone were largely developed between the shaft and epiphysis. We may therefore, he thinks, more hopefully look forward to favourable results in our young patients in this operation of resection of the hip-joint, since every source of future growth of the upper femur has not been lost by removal of the epiphysal cartilage, as many writers have maintained, and many still maintain, but rather that the portion of bone still remaining, extending from the trochanter to the middle of the diaphysis, remains capable of the future development of the bone. We need not, in that case, look hopelessly forward to an ever increasing shortness of the extremity. Our appointed task is, by unremitting treatment, by strict superintendence, diligent exciting of the functions, and by every other means to forward and encourage the further growth of the upper thigh, seeing that the conditions necessary to such growth are still preserved.

WILLIAM MAC CORMAC.

MATERIA MEDICA AND THERAPEUTICS.

WALKER ON THE ICE-TREATMENT OF TIC DOULOUREUX.—Dr. B. M. Walker, of Plymouth, North Carolina (*American Quarterly Journal of Medical Science*, April, 1874.) says, in June, 1868, he was called to see a lady aged sixty, suffering with tic douloureux. She had been under the care of a very intelligent physician at a watering-place, who told her that he had exhausted all the resources of his science. Dr. Walker gave her quinia, iron, and strychnia, with a generous diet, and recommended the most agreeable society and mental employment possible; relying always upon the hypodermic use of morphia to obtain temporary relief, which was only temporary. This course of treatment was continued some time, and changed only when it appeared from habit to be losing its potency. This routine was kept up for five years, no remedies securing for the patient a longer period of relief than a few weeks, until he read in the *American Journal* (Jan. 1873), a case of tic douloureux treated by Dr. Winternitz with the local application of ice. Dr. Walker directed his patient to use the ice upon the part which was over the fifth pair of nerves, and advised the continuance of the application as long as she could bear it, at the same time holding brandy in her mouth. She described the pain as being more intolerable for a while than ever before, then it began to subside and perfect quiet was obtained. He directed her to make the application upon the slightest return of the pain, which he confidently expected to be about twenty-four hours from that time, as it was customary in her case to assume this periodical return. The pain did not occur the next day nor the day following; and there has not been the least return of the affection since.

VEYRIÈRES ON THE PHYSIOLOGICAL AND THERAPEUTIC ACTION OF NITRITE OF AMYL.—Dr. Vey-

rières, in his memoir on the nitrite of amyl (*Thèses de Paris*, no. 98, and *Bulletin Générale de Thérapeutique*) takes up the researches of Guthrie, Richardson, Gamgee, Lauder Brunton, Amez-Droz, &c., and studies the preparation and action of this new therapeutic agent, which is scarcely known in France.

The nitrite of amyl, discovered in 1844 by Balard, is obtained by causing nitric acid to act on amyl alcohol. After many trials, M. Veyrières advises the following method of preparation.

Take the amyl alcohol of commerce, wash it, distil and re-distil it, breaking up the products until there is a liquid having a fixed boiling-point of 132 degrees. To amyl alcohol thus purified, add a fourth part of nitric acid, shake it carefully, place a small portion of the mixture in a retort heated in the water-bath; as soon as it bubbles, extinguish the fire, and allow the reaction to finish it by itself.

Up to this point it is prudent to operate on a small quantity of liquid only, but in the following operations a much larger quantity may be treated. To distil the products of the preceding operation, a glass retort heated in the hot water bath and a receiver partially plunged into cold water are sufficient. Push the distillation as far as you like; at that temperature the formation of any amyl compounds need not be feared. Take the product of this distillation, add to it 1 gramme of caustic potash to 20 grammes of the liquid; keep it in view for some hours, shaking it from time to time, decant the top, distil it by the same process as before. Two layers will be found in the receiver; the lower white layer will be divided from the upper yellowish layer, which is composed of pure nitrite of amyl. A liquid having a density of 0.87 degrees, of which the boiling point is 99 degrees, is thus obtained. This is the nitrite of amyl ($C^{10} H^{11} N^2 O^4$) which diffuses a vapour having a decided odour of apples.

When two drops of nitrite of amyl are inhaled, the pulse for some minutes becomes accelerated to 110 beats; the pulsations of the heart become rapid; the face becomes highly flushed. These symptoms are transitory, and disappear rapidly when inhalation ceases.

In the lower animals the nitrite of amyl produces acceleration of the heart-beats, due, according to M. Amez-Droz, to a diminution of the arterial tension and a sideration of the nervous system. When the dose given to a dog exceeds forty or fifty drops, death may supervene with convulsive phenomena.

Nitrite of amyl has been employed as a therapeutic agent in angina pectoris, in cases of asystole, lipothymia, etc., but the facts are not sufficiently numerous to afford very precise indications. The nitrite of amyl should always be employed in doses of from four to ten drops.

HURD ON INSOMNIA IN INFANTS.—Dr. E. P. Hurd, of Newburyport, Massachusetts (*Boston Med. and Surg. Journal*, February 5), states that he has found chloral-hydrate especially useful in the insomnia of infants. One grain may be given to a restless infant every hour till sleep is induced. Gelseminum admirably fulfils many of the requirements of a hypnotic, for its action seems to be largely that of an exalter of sympathetic function, and it lessens cerebral congestion. Three drops of tincture of gelseminum, with three of laudanum and ten grains of bromide of potassium, every two hours, have suc-

ceeded in breaking up insomnia when other remedies have failed.

MORIN ON A NEW COUPLE FOR THERAPEUTIC APPLICATIONS.—M. Morin has described to the Academy of Sciences of Paris a new battery he has had in successful application for several months. The construction is arranged with the view of obtaining a constant battery of higher electromotive force than the Daniell. The arrangement consists simply in surrounding the central carbon with a solid chromic salt, which is dissolved by the water of the zinc bath. The salt represents the chemical constitution (less water) of Jacobi's solution.

PAGET HIGGS, D.Sc.

RECENT PAPERS.

On the Treatment of Croupous Pneumonia with Tincture of Veratrum. (*Wiener Medizinische Wochenschrift*, no. 17, 18, 19, 20.)

PUBLIC HEALTH.

ON THE USE OF ZINCED OR GALVANISED IRON FOR THE STORAGE AND CONVEYANCE OF DRINKING-WATER. BY W. E. BOARDMAN, M.D., OF BOSTON.*

The Report of the State Board of Health of Massachusetts, for the year 1871, contains a paper upon 'Poisoning by Lead-Pipe,' which is confirmatory of the now well-recognised fact, as illustrated in the following paragraph (p. 40): 'From the evidence presented in the preceding pages, it seems reasonable to believe that the use of lead-pipe for the conveyance of drinking-water is always attended with a certain degree of danger, because such water always contains lead; and that this danger varies in degree with the character of the water conveyed and the susceptibility to lead poison of those who drink it.'

With the view of obviating the dangers arising from the use of lead-pipe, different methods and materials have been suggested from time to time. In this way, zined (or what is termed commonly galvanised) iron has come into use, and at the present time is extensively employed, both in this country and in Europe, for the purposes of roofing-material, gutters and conductors, reservoirs, water-conduits, bathing-tubs, cooking utensils, etc.

The object of the present paper is to determine, if possible, whether or not the employment of this material for the storage and conduction of drinking-water is attended with danger of zinc poisoning, as has been re-affirmed recently.†

The various modes of protecting iron, with the exception of mere superficial coverings, have all been of the electro-chemical class, and have been derived, in various ways, from suggestions deduced from the experiments and observations of Sir Humphry Davy,‡ for the protection of the copper sheathing of vessels. In his paper on this subject, the author developed the principle of counteracting chemical by electrical forces. Subsequently his idea was adapted

to particular cases. He stated that it follows from the principles which he developed, that cast or wrought iron may be preserved from chemical action by suitable protectors of zinc or tin. Professor Edmund Davy was the first to publish* a series of experiments which he undertook with the view of determining this protective power of zinc, which he employed in simple contact and in massive form. Shortly after the publication of the results of these experiments by Professor Davy, M. Sorel, a French engineer, obtained a patent for the protection of iron against rust by coating its surface with fluid zinc, and, with this patent, the first manufactories of zined or galvanised iron were established in London, under the style of the 'British Galvanisation of Metals Company,' and the 'Zined or Galvanised Iron Company.' Professor E. Davy, however, claiming priority of discovery, stated that he had employed this method of zining iron so far back as 1834, yet we have no other record of such experience than his simple statement. Without knowledge of the principle, however, Madame Leroi de Jan-court was granted a patent on September 26, 1791 for preserving metals from rust by covering them with an alloy of zinc, bismuth, and tin.

Zined or galvanised iron is prepared by dipping the iron, previously well cleaned by means of dilute acid, into melted zinc. By this process, the iron becomes superficially combined with the zinc, and there is furnished, as claimed by the first manufacturers, a material which is adapted for use as water-pipes, reservoirs, etc., is durable, cheap, and is unattended with danger to the human system in the way that lead is when employed for similar purposes.

In order to discuss connectedly and to the best advantage the subject which we have in view, it has been deemed advisable to consider it under the following heads, viz.—

1. Is the zinc of galvanised iron acted upon by water, and what are the products of such action?
2. Do these products exert a poisonous action upon the human system?

1. The action of water upon zinc has been recognised for a long time. In the year 1778, M. de la Falie, a French physician and chemist, in place of vessels of iron, copper, &c., then employed for culinary purposes, proposed the use of iron vessels lined with zinc, principally upon three grounds: namely, because, in his opinion, the zinc would not be dangerous; such vessels would not be very expensive, and they would be more durable.† A subsequent report to the French Academy of Sciences disapproved of the use of these vessels, on the ground that the zinc is removed and endangers the health. Discoveries of new sources of supply of the metal and of the means of rendering it more useful in the arts, led to the revival of its employment, by MM. Douey and Montagnac, in the manufacture of culinary articles, roofing materials, reservoirs, water-conduits, &c. The first petitions of these gentlemen to the proper authorities having been reported upon unfavourably, by MM. Thenard and Gay-Lussac,‡ they made another petition which led to a series of experiments by MM. Vauquelin and Deyeux,§ under the authority of the Academy of Sciences. In their report they state that zinc is acted upon by water,

* From the *Fifth Annual Report of the Massachusetts Board of Health*, 1874.

† *Boston Journal of Chemistry*, vol. v. 1871, *passim*.

‡ *Philosophical Transactions*, vol. cxiv. 1824, and *Philosophical Magazine*, 1st series, vols. lxiv. and lxv.

* *Report of the British Association for 1835*.

† *Annales de Chimie*, t. 86, p. 51. 1813.

‡ *Jour. de Méd. de Corvisart*, t. 36, p. 225.

§ *Annales de Chimie*, t. 86, p. 51. 1813.

the weakest vegetable acids, and butter; that water, allowed to stand in zinc vessels, was partly decomposed and a white oxide was produced, while the water covering the oxide had a metallic taste.

M. Schaufele* made a series of careful experiments, the results of which were confirmed later by distinguished chemists, notably by Payen and Chevallier,† with the view of determining the action of various substances upon zinc. He found that common water, allowed to stand in a galvanised iron vessel, presented traces, very slight indeed, of zinc at the expiration of thirteen hours; that common water, placed in pure zinc vessels, gave no indication of the presence of zinc; that distilled water showed traces of zinc, in five hours, both in pure zinc and galvanised iron vessels.

Similar results have been reported by numerous reliable observers. Professor Wm. Ripley Nichols, of the Massachusetts Institute of Technology, remarked to the writer that he always expects to find zinc in water which passes through galvanised iron pipes, and, in a written communication, he stated that a specimen of water drawn from the pipes, which have been in use in the Institute for eight or nine years, contained a small amount of zinc in suspension, and in solution an amount equal to 0.062 grain to the gallon. The water had remained undisturbed in the pipes for about thirty-six hours.

Another specimen of water was examined by Professor Nichols, at the request of the writer. It was spring-water which had passed through between forty and fifty feet of zinc pipe, from which no water was drawn previously for about twenty-four hours. The analysis gave rise to a suspicion of drainage contamination, and detected a trace of zinc in suspension and 0.843 grain to the gallon in solution.

This subject of the action of water on zinc has been most ably treated by Robert Mallet,‡ who drew up a series of papers showing the results of experiments made by himself, with the view of determining the best protector for iron against corrosion by air and water. Among the conclusions derived from his prolonged and carefully conducted experiments, the following may be quoted in proof of the affirmative of our question.

‘Of Cast-iron in Simple Contact with Zinc, immersed in Fresh Water.’

‘If cast-iron be perfectly free from any initial stains of rust and quite homogeneous in texture, it is electro-chemically preserved by an equal surface of pure zinc for an indefinite period, during which the zinc is oxidated, and forms mammillary concretions on the iron; after which the protective power of the zinc is greatly diminished, and, at this stage, the contact of any substance, even a neutral one—such as glass—with the iron, is sufficient to originate oxidation upon it.

‘If cast-iron, having a polished surface, is suffered to contract any coating of rust, although the surface be afterwards perfectly polished to the eye, yet zinc, in simple contact, has lost nearly the whole of its power of protection; the zinc and iron both oxidate from the moment of immersion.’

‘Of Cast-Iron, in Simple Contact with Zinc, immersed at an indefinitely small Depth in Fresh Water.’

‘Cast-iron, free from initial rust, so exposed in contact with an equal surface of zinc, is oxidised from the first moment of exposure. The zinc is oxidised from the first also.

‘A plate of iron, whose entire surface was covered with zinc in metallic contact [zincd or galvanised iron], was immersed for twenty-five months in fresh water. On examination, much flocculent zinc had been formed, and lay at the bottom of the glass vessel, which, in some places, was stained with red oxide of iron. The zinc surface was found, in irregularly scattered patches, wholly removed down to the iron, which was covered with peroxide. Hence, about two years appears to be the limit of the preservative power of zinc to iron in fresh water, applied in fusion over its whole surface by the ordinary method. It is to be observed that the zinc surface was removed by solution, unequally or in patches, indicating local action *ab initio*; and it has been shown before that as soon as oxidation takes place at any point upon the iron surface, the protective power of the zinc is diminished at once or rendered null. [The corrosion of both zinc and iron then ensues more rapidly.]

‘The conditions the most favourable possible for rapid oxidation of iron consist in its exposure to wet and dry or to air covered with an indefinitely thin film of water, constantly renewed; thus circumstanced, zinc has no protective power over iron in fresh water, and, on the whole, it may be affirmed that, under all circumstances, zinc has not yet been so applied to iron to rank as an electro-chemical protector towards it, in the strict sense.’

In a report,* made by Professor Max Pettenkofer, in reply to the inquiry, how thick a covering of zinc is required to insure permanent protection against the oxidation of iron, the author gives the results of a series of experiments, undertaken by himself, with zinc plate taken from the roof of a building in Munich, where it had been exposed to the atmospheric influences during twenty-seven years. The outer surface was found to be covered with a thick, whitish, oxidized layer, of varying depth, showing that the oxidation had followed the crystalline structure of the metal. By calculation, he determined approximatively, that upon a piece of the zinc, one and a half feet square, there were present 4.264 grammes of zinc rust. By experiment, also, he estimated the amount which had been removed during these twenty-seven years, in the rain-water, in solution and by mechanical displacement, as about 4.117 grammes, making a total of 8.381 grammes.

The preceding observations, which have been made at different periods, and were derived from a variety of sources, will be sufficient to illustrate the fact that the zinc of galvanised iron is acted upon by water; that, when allowed to stand in reservoirs or to flow through pipes of this material, water will contain a greater or less amount of zinc, for a longer or shorter period; finally, that, sooner or later, the whole of the zinc will be removed.

(To be continued.)

PROPOSED REGULATIONS AS TO THE STORING OF CHEMICALS IN THE METROPOLIS.—The follow-

* *Jour. de Chim. Méd.* t. iv. p. 663, 1848, and Tardieu, *Dict. d'Hyg. Publique*, t. 3, p. 708. 1854.

† Tardieu, loc. cit.

‡ *Report of the British Association*, vols. vii. and ix. for 1838 and 1840.

* *Abhandlungen des naturwissenschaftlich-technischen Commission in München*, vol. i. 1857.

ing clause occurs in the Metropolitan Buildings and Management Bill, which has been introduced into the House of Commons by Colonel Hogg, the Chairman of the Metropolitan Board of Works.

'29. It shall not be lawful for any person to deliver, receive, or keep any quantity greater than that from time to time prescribed by bye-law of the Board under this Act of any of the following articles, namely—petroleum, phosphorus, mineral oil, turpentine, resin, tar, pitch, paraffin, naphtha, varnish, fireworks, matches, sulphuric acid or other mineral acid, or chemicals of an inflammable nature, into or in any building other than a fire-resisting building, or a cellar, or a room on the basement storey of a building, or a room on the ground storey of a building having a cellar or vault immediately under it, covered with such arching as is required for support of floors in fire-resisting buildings.

'It shall not be lawful for any person to deliver, receive, or keep, any quantity exceeding *half a ton* of saltpetre or nitrate of soda into or in any building other than a building approved by the Board as fit for that purpose; in which case no goods other than saltpetre or nitrate of soda shall be delivered, received, or kept, into or in the same building.

'If any person acts in any manner in contravention of this section, he shall be deemed guilty of an offence against this Act, and shall for every such offence be liable, on summary conviction before a magistrate, to a penalty not exceeding *fifty pounds*, and to a further penalty not exceeding *twenty pounds* for every day on which the offence continues after notice thereof served on him by the Board.'

EPIDEMIOLOGY.

ERMAN ON THE CHOLERA EPIDEMIC OF 1873 IN HAMBURG.—In Virchow's *Archiv*, vol. ix. part i. Dr. Fr. Erman communicates some interesting observations on the cholera patients in the General Hospital in Hamburg, of whom there were about 260 from the middle of June to the beginning of October, 1873. When the epidemic commenced, the only other parts of Germany known to be infected were some places on the Vistula. Till the middle of July the cases came in, one by one, and all from one spot. At the beginning of August they began to be more numerous and more diffused. At the end of October the epidemic was over. From June 16th to July 30th there were 21 cases, during August 172, in September 71, and in October 11; in all 275. The ten last patients were emigrants, attacked on board ship. Eight of the 274 were inmates of the hospital; and the mode of contagion is noteworthy. All had either occupation amongst the cholera patients (as nurses or porters), or were in wards closely contiguous to the cholera-wards. Thus the female cholera patients were at first in Room No. 386 of the new building, and the first inmate attacked was one in Room 384, which had two doors—one into No. 386, which was closed, and one which opened into a common corridor. The next was a porter who had to carry corpses to the dead-house, and had washed one after a post mortem examination. He had only left the house once for the last fourteen days before his death, and then went to a neighbourhood where no cholera cases occurred until some weeks later. Four weeks afterwards a patient, aged fifty-eight, was attacked, who was an inmate of

Room 401, into which, three hours before his attack, a cholera patient had been carried by mistake. Next a male nurse, and then an ironer in one of the laundries, who had not to wash any of the cholera linen. After this another male nurse was attacked. The next patients were four children, from a room close to the female cholera ward, one of whom was probably the carrier of contagion to the others, having been sent for supposed cholera into the special ward, and sent back. He ultimately died of the disease. As only 8 out of a community of 1500 persons were attacked, and those 8 were thus exposed, we can scarcely deny contagion. It is however remarkable, that in 1848, when there were no special cholera wards, and the dejections were kept for the doctors' inspection without any disinfection, although cholera cases were mixed with other sick people, only a few isolated cases occurred amongst the patients, and none amongst the nurses or porters.

In 1859, during the second great epidemic at Hamburg, 400 cholera patients were under treatment in special wards, situate between the general ones—from the middle of June to the end of September. The only precautions were disinfection of the stools and closets with ferrous sulphate. None of the attendants were attacked, but 17 of the other patients were [see Tüngel's *Mittheilungen von der medium Abtheilung des Allgemeinen Krankenhauses zu Hamburg im Jahre 1859.*] Again in 1871 there was no spread amongst the inmates, although 70 patients with cholera were received.

There are some valuable remarks on temperature. The author thinks that Güterbock's cases (Virchow's *Archiv*, vol. xxxviii.) of temperature requiring forty-three minutes to reach its full height, may be differently explained. He never saw any appreciable difference between the reading at twelve minutes and that at fifteen minutes. It is only in the first few hours of the attack that there is any considerable difference between the axillary and rectal (or vaginal) temperatures. This difference soon begins to decrease by the rapid rising of the axillary temperature—and the defervescence is tolerably simultaneous, as regards the different points for measurement of temperature. The author calls all those cases febrile, in which the rectal or vaginal temperatures were 100.5° or more, and those in which there were only 96.8° to 100.4° he calls free from fever. Of the former there were 109, of the latter 117. In the febrile cases the rectal or vaginal temperature reached a height of 100.5° to 102.2° in 43 patients, of whom 9 were pulseless; 102.2° to 104° in 43 patients, of whom 29 were in the same pulseless state; 104° to 105.8° in 12, all but one pulseless; 105.8° to 107.6° in 11, ten of whom were pulseless. Thus 59 out of 109 febrile cases were pulseless, &c., whilst of the 117 without fever only 24 were pulseless. Thus 48.2 per cent. of the cholera cases had fever—and their mortality was 55.9 per cent.; whilst the cases free from fever had a mortality of only 38.4 per cent. Blood occurred in the stools in 11 cases; 9 of them in those free from fever. All died. Twelve patients had skin-affections as sequelæ (roseola and urticaria). Two suffered from consecutive boils. One had thrombosis of some veins of the right leg, below the knee. Two patients had long-continued mental disturbance—one was a backward youth aged twenty-three (whose testicles were no bigger than hazel-nuts) who was perfectly demented for three weeks. The second, who had injured his skull some years before, had melancholia. Several

patients were attacked with delirium tremens after their recovery from cholera.

As regards the pathology, Dr. Erman strongly insists, that in children fatal attacks of cholera frequently run their course with bile-colouring in the stools all through the attack; and the contents of the intestines and stomach were often anything but rice-water-like. Minute extravasations were common in the pleuræ, lungs, kidneys, and the walls of the heart, as well as in the endocardium and pericardium.

Güterbock observed that in adult males dying of cholera there was nearly always an emission of semen, which he ascribed to rigor mortis. The semen is found on the scrotum or in the groin, and the urethra is often full of spermatozoa. (Güterbock, *Bericht über die Cholera-station*, Berlin, 1852.) Rarely pure semen is found in the bladder itself. Very often the spermatozoa may be found lively even sixteen hours after death. Our author, whilst confirming these facts for cholera, insists that this phenomenon is not peculiar to this disease. He has examined some thirty corpses after other modes of death, and found semen in the urethra of all but one (who had been long confined to bed). Thus an emission occurs in patients dying from pneumonia, tetanus, delirium tremens, and other acute diseases, as well as after injuries. Of course there may be cases without any spermatozoa, just as in life. [Consult Casper on this point.] Casper and Lewin long ago established the fact that seminal fluid is found in the urethra of the great majority of male corpses, but did not determine the period at which the emission takes place, though Lewin (G. Lewin, *Studien über den Hoden: Deutsche Klinik*, 1861, no. 33), believes it to be a part of the rigor mortis. Without denying the possibility of this (for in cholera, especially post mortem, muscular movements are specially pronounced) the author remarks that in other diseases he has ocular proofs that this is often one of the phenomena of the death-agony, and occurs, generally without any erection or proper ejaculation, one or two minutes before the last breath is drawn. In one case, a youth of seventeen years, dying with opisthotonic convulsions, from caries of the petrous bone and abscess of the cerebellum, there was both erectio penis and ejaculatio seminis.

The treatment of this epidemic of cholera consisted mainly in tablespoonful doses of brandy or port wine, given hourly, with the freest use of ice and iced water. Subcutaneous injections of muriate of quinia in four to five grain doses were soon abandoned. The remaining treatment was almost all expectant. Troublesome hiccup was relieved in some cases by teaspoonful doses of common salt. The return of the pulse in one of his cases after abortion, is an interesting fact.

[The translator's notes of post mortem examinations, &c., enable him to confirm the remarks of the author as to the frequent occurrence of seminal emissions in articulo mortis in patients dying from other acute diseases, as well as in cholera.—*Rep.*]

W. BATHURST WOODMAN, M.D.

MCCANN ON SMALL-POX AND VACCINATION.—In his report to the Committee of the Small-pox Hospital at Stockwell, Mr. McCann states that, during the eleven months ending December 31, 1873, he had admitted eighty-one patients, of whom sixty-four had small-pox, and seventeen suffered from other diseases. Of the sixty-four small-pox cases, but one could be said to have been well vaccinated; eleven presented 'moderate marks,' and of these none died;

twenty-six presented 'bad marks,' and of these two died, or 7·6 per cent.; twenty-six had never been vaccinated at all, and of these thirteen died, or 50 per cent. The other diseases admitted to the hospital are classified as follows, viz., measles nine cases, nettle-rash four cases, scabies one case, chicken-pox one case, and venereal disease one case. 'Five patients,' Mr. McCann says, 'were received, who had been re-vaccinated; two of them two years, two eight months, and the fifth eight days before admission. In the first four cases vaccination was unsuccessful; and in the fifth, judging from local appearances, the operation was successful, but only in modifying the disease. One case came under treatment with a distinct second attack, the marks resulting from the first seizure being visible.' On December 29 the hospital was empty.

ALEX. COLLIE, M.D.

MACKELLAR ON FEVER.—From Dr. MacKellar's Report to the Committee of the Stockwell Fever Hospital, we learn that during the eleven months ending December 31, 1873, he admitted two hundred and twenty-six cases of typhus fever, one hundred and thirty-two cases of enteric fever, forty-six cases of scarlatina, and ninety-eight cases of other disease. Of the typhus cases fifty-six died (twenty-four males and thirty-two females), a mortality of 24·7 per cent.; which, however, by deducting the cases which died within forty-eight hours of admission, is reduced to 21·2 per cent. The danger from typhus in persons of advanced years is shown by the fact, that the mortality under thirty years of age was but 8 per cent., whilst that of persons over thirty years of age was 52 per cent. Of the enteric fever cases, twenty-four died, thirteen males and eleven females, being a mortality of 18·1 per cent., which is reduced to 16·2 per cent. by deducting the deaths which occurred within forty-eight hours of admission. Of the scarlatina cases, two died. Six cases of intermittent fever were admitted during the year from recognised ague districts in the country. These cases were not treated with immunity to the attendants, for Dr. MacKellar says: 'The chaplain, matron, four assistant nurses, and one male attendant' contracted typhus fever, one nurse enteric fever, and one nurse enteric and typhus fever. 'The chaplain and matron were both between fifty and sixty years of age, and both died.'

ALEX. COLLIE, M.D.

MISCELLANY.

THE number of medical students in the University of Strasburg during the winter session just past was 184.

PROFESSOR ESMARCH, of Kiel, has received permission from the German Emperor to wear the cross of the rank of Commander of the Royal Swedish Order of the North Star, second class, which has been conferred on him.

A NUMBER of cases of measles have lately occurred among the school children in several districts of Vienna, and there has been a marked increase of small-pox in one of the suburbs.

VACCINATION IN GERMANY.—It is reported in Berlin that it is intended to form in each province of the German empire a vaccine establishment, with the objects of providing medical practitioners with fresh lymph free of expense, and of undertaking and promoting scientific researches on vaccination.

PROFESSOR COHNHEIM, of Breslau, who has been suffering from illness, has recovered sufficiently to be able to return to his professional duties. Professor Pitha, of Vienna, has been obliged to visit Mentone and Meran for the benefit of his health. He is so far better that he expects to be able to return to Vienna in the autumn.

WATERING PLACES IN SPAIN. The Spanish Government has just issued an elaborate series of regulations regarding bathing and mineral-water establishments in Spain and the adjacent islands. The duties, rights, and privileges of the medical directors of these institutions are, *inter alia*, laid down with much minuteness.

MEDICATED LOZENGES.—Eighteen children were admitted last Friday at the London Hospital with severe vomiting, caused by eating 'medicated lozenges.' The facts are these. Some time since a confectioner's shop in the neighbourhood was burnt, and in clearing out the rubbish some was picked up and eaten by the children. Vomiting came on about four hours afterwards. Some of the cases were severe, but others were slight. Emetics and house medicine were given. None of the children were sufficiently ill for admission into the hospital. The lozenges were not sold, but were picked up by the children.

DISTRICT MEDICAL OFFICERS IN ITALY.—The project for holding a congress of Italian district medical officers at Forlì in September next is being pushed vigorously. Forms of adhesion have been circulated in the medical journals and otherwise; and the central committee have recently issued a manifesto, urgently recommending the appointment of local subcommittees. The prefect of Naples has recently issued a circular to the syndics in his province, asking for information on various points in regard to the medical service of the poor. In the course of the document, he remarks that there has been too much economy in the department, and that in consequence there has been a deficiency in the supply of well qualified medical practitioners for the poor.

HOW SMALL-POX IS SPREAD.—The following fatalities from small-pox are reported by the *North Devon Journal*. A boy of Combe Martin, an apprentice to a firm of drapers in Bristol, was lately taken ill, and sent to a medical gentleman, and almost immediately afterwards sent home by train, a telegram having been previously sent to his friends to send a conveyance to meet him at the railway station. It was a cold, raw day; and the parents, not supposing that their son was seriously ill, sent an open vehicle to bring him home. On his arriving at home, it was at once seen that the youth was suffering from small-pox. After a few days he died. The young man who fetched him from the station also took the disease and died, and the woman who nursed him is seriously ill. Two men who put the body into the coffin caught the infection, and one is reported dead. Another woman who took tea with the nurse likewise caught the disorder.

PARACELSUS ON THE NATURAL TREATMENT OF WOUNDS.—In an historical article just commenced in the *Allgemeine Wiener Medizinische Zeitung*, Dr. Rittman gives the following quotations from the writings of Paracelsus. 'Nature does not follow thee; thou must follow her.' 'In order that thou mayest understand what it is that heals a wound, know that the nature of flesh, of vessels, of bones, has in itself an innate balsam, which itself heals, wounds, stabs, and the like. The balsam that naturally lies in bones heals broken bones; the balsam that lies in the flesh heals flesh. Thus every surgeon should know that it is not he, but the balsam in the body, that heals. If the surgeon think that it is he who cures, he deceives himself, and does not know the measure of his own skill.' 'The surgeon is the protector of nature; and he can only perform this duty by having a knowledge of medicine.' The 'balsam' spoken of above (which in modern language we call plasma) takes, he says, its origin

from food and drink; but its healing effect is promoted by the skill of the physician. 'A wound must be kept clean and pure in its nourishment, so that nothing foul or stinking may be found in it. Know, that the pus in wounds is of two kinds; one proceeding from the nutrition of the wound, the other from corruption. . . . Keep wounds pure and clean, and protect them from external and accidental enemies. Thus are all wounds healed.'

LAUGHTER AS A MEDICINE.—A short time since, the *Sanitarian* reports, two individuals were lying in one room, very sick, one with brain-fever, and the other with an aggravated attack of mumps. They were so low that watchers were needed every night, and it was thought doubtful if the one sick of fever could recover. A gentleman was engaged to watch over-night, his duty being to waken the nurse whenever it became necessary to administer medicine. In the course of the night, both watcher and nurse fell asleep. The man with the mumps lay watching the clock, and saw that it was time to give the fever-patient his potion. He was unable to speak aloud, or to move any portion of his body except his arms, but, seizing a pillow, he managed to strike the watcher in the face with it. Thus suddenly awakened, the watcher sprang from his seat, falling to the floor, and awakened both the nurse and the fever-patient. The incident struck the sick men as very ludicrous, and they laughed heartily at it for some fifteen or twenty minutes. When the doctor came in the morning he found his patients vastly improved, and said he never knew so sudden a turn for the better. Now both are up and well. Who says laughter is not the best of medicines? And this reminds the writer of another case. A gentleman was suffering from an ulceration in the throat, which at length became so swollen that his life was despaired of. His household came to his bedside to bid him farewell. Each individual shook hands with the dying man, and then went away weeping. Last of all came a pet ape, and, shaking the man's hand, went away also with its hands over its eyes. It was so ludicrous a sight that the patient was forced to laugh, and laughed so heartily that the ulcer [? abscess] broke, and his life was saved.

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The London Medical Record.

WEDNESDAY, JUNE 10, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BEARD AND OTHERS ON THE TREATMENT OF HEMIPLEGIA.

At a late meeting of the New York Academy of Medicine (*New York Medical Record*), Dr. George M. Beard read a paper upon practical points relating to the treatment of hemiplegia.

The leading features of the paper were as follows.

Treatment should be begun early. In general (with regard to electric treatment) too strong currents have been used, and have been continued too long. Electricity is a sedative as well as a stimulant.

There is no need of producing another lesion of the brain by employing electricity. A galvanic current may be sent through the seat of the disease in the brain, and local applications may be made to the muscles when the effects of the lesions are manifested. The spinal cord becomes degenerated from lack of use, shown by stiffness of the muscles, &c.; hence the electric treatment should also be directed to the spinal cord. This is an important point. Recent experiments have shown that a galvanic current can be sent through the part in the brain where the lesion is supposed to exist. Outside of theory, the following are practical considerations of much importance.

1. The will of the patient should be enlisted to assist in the moving of the muscles, and he should throw all the cerebral force into the movement of a hand or foot. The rapidity of the recovery depends very much upon the organic will of the patient. The medical man can accomplish very much more by urging that will into resolute action.

2. The muscles should be relaxed at the time when the application of the current is made. This is accomplished by giving the muscles artificial support, by an assistant's hand or otherwise, while the current is being applied. A contraction can be obtained when the muscles are supported or placed in a relaxed condition, when it cannot otherwise be obtained. It is very beneficial to maintain the artificial support throughout the entire course of treatment. The apparatus of Dr. Van Bibber, or the India-rubber muscle of Dr. Sayre, may be employed for this purpose with advantage. Dr. Beard had found some difficulty in making easy attachments for the India-rubber muscle. It is desirable to have something which the patient can have adjusted, and can wear with comfort.

3. Dry or moist heat should be freely applied to the muscles and joints. Localised dry heat can be conveniently applied by means of clay tubes, which can be made of any shape or size desirable. The tubes can be heated in an oven, covered with a cloth when removed, and then the arm or leg can be inserted and permitted to remain for a number of

hours. This should be repeated once or twice a day. The use of this means is beneficial, from the fact that it improves muscular nutrition and the nutrition of the joints. It is especially beneficial in the treatment of the small muscles of the hand.

4. Passive movements, especially of the shoulder-joint, should be begun early and done very much more thoroughly than is customary in a majority of cases.

5. Massage can be applied to individual muscles. When this means is alone employed, it is not productive of very wonderful results. Indeed, the same, to a considerable extent, may be said of all these measures. They all may be adopted at once. It is like the farmer's pulling out a stump by attaching many horses at once, and not by hitching up one at a time, working him until he is exhausted, and then attaching another.

6. The use of food for the nerves and brain embraces cod-liver oil, phosphorus, &c. Strychnia, hypodermically used, is also very serviceable.

Dr. Andrews, of the State Lunatic Asylum at Utica, has given the following formula for preparing cod-liver oil, which disguises its taste.

| | |
|----------------------------------|---------|
| Yolk of eggs | no. iv. |
| Glycerine | 3j |
| Cod-liver oil | 3iv |
| Phosphoric acid dilute | 3ss |
| Sherry wine | 3ij |
| Essence of almonds | 3j |

The eggs and glycerine are first to be carefully triturated in a mortar, and while the trituration is continued add the oil, drop by drop. When this is done, the acid, wine, and essence may be added. The above is not the precise formula used at the asylum, but it is essentially the same. The manner of making the emulsion is the important feature. The amount of phosphorus can be varied to suit different cases, or other remedies may be added, such as arsenic, &c.

A number of cases were then cited, illustrative of the benefits which may be obtained by placing in practice the items of treatment mentioned.

Three things were noticed relative to prognosis.

1. There is a tendency in a majority of cases, which are not speedily fatal, to slow but spontaneous recovery up to a certain point. Cases, however, which are properly treated, will improve much more rapidly than if left to themselves.

2. In those cases where spontaneous recovery is evident, and will be carried on to a certain point, treatment should be carried along side by side with the spontaneous improvement, and not deferred until spontaneous improvement has done its work.

3. Prognosis in cases complicated with hysterical and nervous symptoms is better than in cases which are not so complicated. A hysterical nervous temperament seems to antagonise the effects of the disease. The nervous are easy to make sick and easy to make well, while the lymphatic are hard to make sick and hard to make well.

Dr. J. J. Mason criticised the portion of the paper with reference to the passage of a continuous galvanic current through the brain-substance. It was, he said, perhaps a measure worth trying; but for a measure to be indicated as properly belonging to measures to be adopted, it must have been tried in a sufficient number of cases, and have been followed by results which can be traced directly to the action of the remedy.

Dr. Neffel remarked that when there was apoplexy,

the cause was not a local but a general condition of the walls of the blood-vessels. This condition must be taken into consideration in the treatment. In certain cases, upon *post mortem* examination, the gross appearances of the brain remained unchanged, but the microscopic lesions would be found to be important, such as were connected with the perivascular spaces, &c. As a secondary effect of such lesions, there might be affection of the nervous elements and consequent atrophy, &c. It was further known that such lesions were produced by irregularities in the circulation, and these again were produced by affections of the vaso-motor system. It was also important to take these conditions into account in the treatment. He regarded the use of stimulants as bad. One of the best remedies, from his own experience, was the galvanic current passed through the brain and sympathetic. It must be used, however, with the greatest care. The current should be very mild. Arsenic was also a very important remedy; it had the power of preventing such congestions. From one to three drops of Fowler's solution should be given once or twice a day, and continued for a month or more.

It was important never to forget that the affection of the brain called forth a secondary affection of the spinal cord; hence the spinal cord should receive treatment at the same time, in order to prevent, as much as possible, those secondary degenerations.

Dr. Van Bibber cited a case in which the improvement which has taken place as the result of placing the muscles in a state of relaxation was much greater than could reasonably have been expected without the adoption of this measure. He also cited a case of ptosis, in which the lid was raised by a thin piece of India-rubber band attached to it by means of court plaster, and then covered with collodion, and the other extremity secured to the forehead in the same manner. The benefit which had accrued since the application of this simple device had been marked.

UPHAM ON CEREBRO-SPINAL MENINGITIS.

In the fifth Annual Report of the Massachusetts Board of Health for 1873, Dr. J. Baxter Upham gives his own experience, and the experience of other medical men, on the nature of cerebro-spinal meningitis.

The first reliable record of the disease, as seen in the epidemic form in Massachusetts, dates as far back as 1806, when, in the month of March of that year, there were nine cases, all of which proved fatal. From that time it appeared in various parts of the state in a more or less epidemic form. It prevailed in particular in the year 1810, and was reported on by Drs. James Jackson and John C. Warrington. These reporters stated that the disease was first seen in the town of Dana, where it commenced about the beginning of the year, 'but not in any considerable number of instances until the cold weather of the middle of January.' In the latter part of February it was heard of in the various towns in the county of Worcester. 'It was seen at Cambridgeport in the latter part of March, and at Lancaster in April. In the course of April and May a few cases occurred at Boston, and again in the counties of Worcester and Middlesex. During May it presented itself in Springfield, and had not subsided in the second week of June.' Almost nothing more is heard of the disease

until 1849, when Dr. Joseph Sargent, of Worcester, reported it as having appeared in the month of March of that year in the towns of Millbury and Sutton; but in this instance few cases were seen, and Dr. Sargent suggested for the first time the analogy of the disease with the so-called 'spotted fever.' It is next reported in the town of Becket, in Berkshire County, and Dr. Jackson stated that he had met with isolated cases since the epidemic of 1806-16. Since the appearance of the disease amongst the soldiers during the war, it has been observed in various parts of the state of Massachusetts. In 1865-6 Dr. Upham observed five cases in the Boston City Hospital, some of which originated there; and Dr. Page saw a considerable number of cases near the close of the war, at Gallop's Island, a military post at Boston harbour. From a report of a Committee of the Massachusetts Medical Society, it appears that in 1857 there were three cases; in 1858 twenty-seven cases; in 1859 three; in 1861 five; in 1862 five; in 1863 seven; in 1864 eighty-eight; in 1865 one hundred and sixteen, and in years not stated, twenty-six, making a total of 280 cases. From 1866 to 1871 Dr. Upham could not find any reliable account of the number of cases. Neither the state nor city registration reports rendered 'much assistance in this investigation.' In the former the term cerebro-spinal meningitis does not even appear, but Dr. Upham infers that the disease may be embraced within the term 'Cephalitis,' under which term all inflammatory affections of the brain and spinal cord appear to have been classed until 1872, when in the State Nosological Records 157 deaths were returned as having occurred from the disease in question, sixteen from 'spotted fever,' and two from 'black fever.' In the same year the Boston City Registrar reports sixty deaths; thirty-four males and twenty-six females—from this disease; and he further says that in 1867, when the disease 'was first distinctively reported to him under its present name,' there were seven deaths; in 1868 eight; in 1869 seven; in 1870 five; and in 1871 three.

In the early part of 1873, in consequence of the disease having appeared in the eastern part of the state in an epidemic form, the State Board of Health issued a circular to its correspondents requesting information as to the nature of the disease. Replies were received from 199 physicians, who give more or less information of 517 cases, and upon this information Dr. Upham's account of the epidemic of 1873 is based. The onset of the disease was for the most part sudden. The earlier symptoms were, pain in the head, felt mostly in the front, pain and tenderness along the spinal column, retraction of the head, delirium, convulsions, a rapid pulse, and a hot dry skin. As the disease advanced, these symptoms continued, the pain becoming less marked, whilst stiffness and rigidity of the muscles of the neck and lower jaw, with difficult deglutition, supervened. Towards its close there was insensibility, pallor, alternating with flushings of the face, slow feeble pulse, but sometimes also very rapid, strabismus with dilated and insensible pupils, hemiplegia, paralysis of the respiratory muscles and of the bladder. The duration of the disease varied considerably. Some were carried off in forty-eight hours, whilst others continued for three months. One case is recorded to have lasted but two hours, and another to have lasted for six months. The mortality of the present epidemic was about 44 per cent., which is

considered comparatively low, 60 and 70 per cent. being by no means uncommon. The treatment consisted in the administration of sedatives, such as morphia, chloral, bromide of potassium, and cannabis Indica, emetics, cathartics, and counter-irritants, with, so far as appears from the report, no good result. As a sequela, deaf-mutism has been observed. All ages, occupations, and nationalities were liable to be attacked; but the majority of the cases were in young persons. As regards sex, of 517 cases, 231 were reported as males and 208 as females; and in 78 the sex was not stated. The circumstances of the patients, 'whether easy or otherwise, were pretty evenly balanced.' The malady was most common in the spring months. Of 394 cases in which the date of the attack was definitely stated, ten began in January; twenty-five in February; eighty-four in March; one hundred and sixteen in April; ninety in May; thirty-seven in June; ten in July; eight in August; five in September; seven in October; one in November, and two in December. The first recorded case is dated January 6.

At the same time the disease prevailed among animals, such as horses, cows, hens, chickens, dogs, and cats. Of the *post mortem* appearances in the human subject, Dr. Upham simply says they are few and meagre. Of the appearances found *post mortem* in horses, he says (quoting from Dr. O. H. Flagg, a veterinary surgeon) that they were 'congestion of the psoas and iliac muscles, and also of the external lumbar and sacral muscles. The meninges of the posterior part of the spinal cord were inflamed, with a quantity of coloured fluid in the canal, the amount of which I was unable to measure. The vessels of the arachnoid were full to distension, and in spots this condition seemed to dip down into the cord itself. There were petechial spots extending over the dorsal portion of the cord. The kidneys were inflamed (or perhaps more properly, congested) and enlarged.'

Dr. Upham does not think that there is any definite connection between the disease in question and unsanitary conditions; and certainly, so far as the returns from the medical men from whose reports he quotes, show, it would appear that the disease prevailed almost equally under conditions sanitary and unsanitary. It is to be remarked on this head, however, that not only are laymen unqualified to detect unsanitary conditions, but few medical men are so qualified. For the investigation of this subject, those who know just enough of the matter to enable them to measure approximately their own ignorance, know that the whole subject is a very wide one, a very complicated one, and one which requires special training, and a large special experience to deal competently with it. The returns of Dr. Upham's correspondents appear to us meagre and unsatisfactory in the extreme. What possible enlightenment is to be gained from such descriptions of the sanitary conditions of localities as 'high and dry,' 'low and damp,' and 'I have observed nothing worthy of special remark'? We should further like to know in how many instances enteric fever, hæmorrhagic small-pox, typhus fever, scarlet fever, meningitis, delirium tremens, and acute miliary tuberculosis have been returned as cerebro-spinal meningitis? When we come to Dr. Upham's own personal observations, we find that definite unsanitary conditions predominate. Of seventy-four cases investigated by himself, in

forty-six there were obvious sanitary defects, the most common insanitary condition being dampness of soil. Speaking of Charlestown, he says the position of many cases 'which occurred in this city was obtained by our medical correspondent and marked down upon a map. They were in the main low and damp; were mostly upon made land, and near the water, with marked exceptions, however.' Dr. Wheeler, of Chelsea, reported that all, or nearly all, of the cases which had come to his knowledge occurred on the low marginal lands, where the soil is to a greater or less extent saturated with moisture. The same localities where they usually expect to find the majority of their cases in epidemics of typhoid, diarrhoea, &c.'

In the following Table, the percentage of deaths in each ward of the city of Boston is shown.

| WARD. | Population in 1870. | Deaths | Ratio per Thousand. |
|------------------------|---------------------|--------|---------------------|
| XIII. | 8,536 | 11 | 1'288 + |
| II. | 24,912 | 27 | 1'083 + |
| IV. | 10,216 | 11 | 1'077 - |
| XV. | 14,851 | 14 | '942 + |
| X. | 13,097 | 12 | '916 + |
| XIV. | 11,385 | 10 | '878 + |
| I. | 23,824 | 20 | '839 + |
| VIII. | 11,278 | 9 | '798 + |
| VII. | 28,921 | 22 | '761 - |
| XVI. | 12,259 | 9 | '734 + |
| III. | 14,990 | 10 | '666 + |
| XI. | 14,617 | 9 | '616 - |
| XII. | 19,880 | 12 | '604 - |
| VI. | 11,792 | 7 | '594 - |
| V. | 14,166 | 5 | '353 - |
| IX. | 14,142 | 3 | '212 + |
| Deer Island | 1,660 | 2 | — |
| City Hospital | — | 9 | — |
| Mass. General Hospital | — | 2 | — |
| Not stated | — | 8 | — |
| Total | 250,526 | 212 | — |

If now we take the three wards in which the fatality was greatest, and compare them as regards their sanitary condition, with those wards in which the mortality was least, we shall find that the mortality was far larger in unsanitary than in sanitary districts. Thus Dr. Upham describes Ward XIII. as situated in the south-easterly part of the old city proper, spreading out along the waters of the South Bay, and intersected with tidal streams. 'It lies low, and has for the most part no proper drainage.' Ward II. 'Comprises a segment of the north end, so called, the oldest part of the city; its semilunar outline bordering upon the Charles River and the harbour. Many portions of this ward have a densely crowded population.' Ward IV. is centrally situated. It includes Portland Street, with the numerous courts and alleys adjacent, which can hardly be said to revel in favorable hygienic surroundings; eastward it reaches to the harbour, and includes some of the most active business parts of the city.' Ward VI., one of the three wards in which the mortality is lowest, covers the more elevated part of the city. Ward IX. 'is situated between the Common and public garden.' It is largely bottomed on made lands, but lately reclaimed from the sea, and comprises some of the finest streets in the city. The artificially made portion of this ward was originally a dry gravelly bank.' Ward V. is not described in the report.

[From these facts and descriptions, it may be fairly

concluded that cerebro-spinal meningitis is chiefly dependent upon general unsanitary conditions.—*Rep.*

ALEX. COLLIE, M.D.

WEICHELBAUM ON EXTIRPATION OF THE TONGUE AFTER LIGATURE OF THE LINGUAL ARTERY.

Dr. Weichselbaum, assistant in the Klinik of Professor Podrazski, in Vienna, has an article on this subject in the *Wiener Medizinische Wochenschrift*, no. 42, 1873. The arrest of hæmorrhage in operations for cancer of the tongue is often most difficult. In order to readily reach the bleeding points, Syme and Sédillot divided the symphysis menti, and held the two halves of the jaw asunder. Regnoli made an incision from the chin to the hyoid bone, and then a second parallel to the margin of the jaw; the muscles and mucous membrane being divided, the tongue was drawn down through the wound. Billroth, having the same end in view (to facilitate the securing of the arteries), made an osteoplastic section, or cutting out of the middle portion of the lower jaw, a proceeding also strongly recommended by O. Weber, in cases where the disease is far back in the tongue. The objection to this is the difficulty of the subsequent union of the divided portion of the jaw. Czerny operated in 1870 in a case of cancer in the tongue on the left side. He first tied the left lingual artery, then extended the incision along the hyoid bone as far as its right lesser cornu, and afterwards made an incision from the chin to the hyoid bone; the soft parts were divided, the tongue drawn down through the wound, and the disease removed. Billroth has more recently operated without preliminary ligature of the lingual artery. He makes merely a curved incision along the border of the jaw, pulls down the tongue through the wound, and the disease, even when very far back, can be thoroughly removed, while the bleeding vessels can be securely tied. Bulow gave an account of nine cases operated upon in this way, five with success. There is but little damage done to the soft parts, the operation is efficient, and provision is made for the discharge of matter forwards in place of into the trachea.

A large number of surgeons have attempted to perform operations on the tongue bloodlessly, either through the use of the ligature, the *écraseur*, or the galvano-caustic noose; or by the preliminary ligature of one or both the lingual arteries. So far as the first three methods are concerned, they are at the present time almost completely, and, as the author thinks, properly abandoned. At the most, the galvanic cautery is very occasionally employed. All three are open to the objections that one cannot be certain whether all the disease has been removed, and that they do not offer absolute security against bleeding either during or after the operation. The writer mentions a case of secondary hæmorrhage which occurred in the practice of Professor Pitha. Nunneley, who advocates the use of the *écraseur*, saw the lingual artery spout in one of his five cases. Von Bruns has had bleeding after the use of the galvanic cautery. The use of the ligature is very objectionable, on account of the great swelling it produces, and the subsequent presence, in the mouth, of a mass of gangrenous tissue.

The preliminary ligature of the lingual artery reduces the hæmorrhage in operations on the tongue

to a minimum. The first occasion on which it was practised on account of extirpation of the tongue was by Flaubert, in 1833, and by Mirault, in 1835. The latter had the greatest difficulty in discovering the vessel. At the beginning of this century, however, Colomb tied the artery on account of aneurism. The operation was looked upon as so difficult that it was seldom undertaken by surgeons. Formerly the artery was sought for between its origin and the point where the posterior belly of the digastric crosses it. The author, however, prefers to look for it within the triangle formed by the two bellies of the muscle, and the lingual nerve running above and more superficial. In the first position, the artery is much deeper, covered by the hypoglossal nerve, and by several veins, which are liable to injury, while the superior thyroid and facial arteries arise rather close to it. The nerve, lying almost immediately over the artery, may be mistaken for it, and in any case it must be drawn aside. Sometimes the facial and lingual arteries arise by a common origin from the carotid; besides, it is undesirable to place a ligature so close to the parent trunk. These objections do not hold if the artery be exposed in the little triangle of Lesser, whose boundaries are those above mentioned. Here, close beneath the fibres of the hypoglossus muscle, the artery will certainly be found.

The steps of the operation are as follows. The incision through the skin should be made along the upper border of the hyoid bone, three or four centimètres long, and beginning a centimètre externally to the middle line. At the extreme angle a large vein is usually met with, and should be drawn aside. When the platysma is divided, the submaxillary gland appears; this must be drawn upwards after freeing its lower border; and then, just under its middle, may be seen the above mentioned triangle, bounded by the shining tendon of the digastricus below, and the hypoglossal nerve, running from below upwards and inwards superiorly. It must be borne in mind that in old people, in women, and in short-necked individuals, the submaxillary gland projects further downwards, and sometimes even covers the hyoid bone. Often the border of the mylo-hyoid muscle overlaps the triangle, and the hypoglossal nerve may also run very low down. In such cases these parts must be simply pulled aside, and on incising transversely the fibres of the hypoglossus muscle within the apex of the triangle, the artery will at once come into view. There is hardly any hæmorrhage except when the capsule of the gland is being divided. This method of operating has been employed by Hüter about five times, and attributed to him in the *Deutsche Zeitschrift für Chirurgie*, vol. i. p. 587, but the writer asserts that it was previously employed by Professor Podrazski, and that it is described in Pitha and Billroth's *Surgery* without reference to Hüter.

Dr. Weichselbaum then relates the history of four cases. The first was a gentleman aged forty-two years, suffering for six months from cancer of the posterior and middle thirds of the left side of the tongue, extending across the middle line. The lingual artery on both sides was tied without difficulty, further than that caused by the motions of the patient, who was only partially under the influence of chloroform. He felt so much exhausted that the amputation of the tongue had to be performed four hours later. Meanwhile the organ had become visibly collapsed, cooler, and of a bluish gray colour. The tongue was forcibly pulled quite out of the mouth, and transversely

divided with a scalpel behind the disease; the infiltrated parts in the floor of the mouth were also removed, and the operation completed without any loss of blood. On the ninth day the lingual ligatures separated, and in about a fortnight the wound in the tongue had cicatrised, and the power of swallowing was not interfered with, and the patient could speak much more plainly than before the operation. The disease, however, returned, but not in the same place, and the patient succumbed some months later.

The next patient was fifty years old, and the tongue-affection dated eight weeks before. It appeared without assignable cause with swelling, redness and pain in the left half of the tongue, increased flow of saliva, and difficulty of swallowing and mastication. After four days two vesicles appeared; then a fissure, and finally an ulcer. When he was admitted to the hospital, there was an ulcer with hard irregular edges, and the induration about its base extended beyond the middle line. On October 29, both the lingual arteries were tied; the tongue became somewhat collapsed and pale, and was immediately amputated behind the disease through the posterior third. The bleeding was very slight and chiefly venous; one small artery, however, spouted and required to be twisted. The wound of the tongue was united by sutures, that in the neck was left open. The parts quickly healed without accident. On November 30, however, the patient died from an attack of pneumonia. His power of speech had almost perfectly returned.

The next case was a man sixty-seven years old. In February, 1873, he injured his tongue with the sharp edge of a carious tooth. The tooth was extracted, but the sore did not heal. On April 19 he was admitted to the hospital. A cancerous mass, of the size of a walnut, excavated by a deep ulcer, with hard edges, occupied the left side of the tongue, reaching as far back as the anterior palatine arch. The infiltration passed the middle line of the tongue. On April 21 the left lingual artery was tied without difficulty. Four hours later the cancer was cut out with scissors, a couple of loops of thread being first inserted, with which to pull the organ forward. From the cut surface of the tongue only venous bleeding occurred. After the excision of the parts in the floor of the mouth, one small artery required ligature. The patient died two days later, with oedema of the glottis, and purulent infiltration of the cellular tissue of the neck.

The author has collected thirty-seven cases of removal of the tongue after preliminary ligature of the lingual artery, with six deaths, or 16 per cent; while of nine cases performed according to Billroth's osteoplastic method, four died, or 44 per cent. But the number of these last are too small to form a proper comparison. The author points out that the absence of bleeding in the mouth makes the boundaries of the disease much more easy to recognise during the operation. When the disease has extended into the floor of the mouth, the author prefers Billroth's submental method, as the parts can be thoroughly drawn out, and the bleeding points secured without much trouble. When the disease is confined to one half of the tongue, it is probably only necessary to secure the lingual on that side, since the branches of the ranine artery do not anastomose in the tongue with those of the opposite side.

WILLIAM MAC CORMAC.

REUMONT ON CONSTITUTIONAL SYPHILIS, AND ITS MIXED TREATMENT BY MINERAL WATERS AND MEDICINES.

The subjoined is mainly a condensed translation of a portion of an article by Dr. Reumont in Valentiner's recent *Handbook of Balneology*.

Syphilis is termed constitutional when, the incubation-stage of the syphilitic germs being past, a peculiar disturbance of the system and altered nutrition of it are marked by the appearance of a succession of localised products. These products have one general character, and under favourable circumstances transmit syphilis from one person to another.

The experience of the fact that there is a certain amount of regularity in the appearance of these products, has led to the division of the symptoms of the constitutional disease into secondary and tertiary; the first referable to the cutaneous and mucous surfaces, the second to the osseous system, to serous or fibrous membranes, and the parenchymatous organs. But Virchow and many others have shown that there is no regular sequence in the appearance of these phenomena; tertiary accidents sometimes occurring during the secondary period, and *vice versa*. Sigmond remarks that it is impossible to make any strictly scientific division; but for clinical purposes he recognises four stages of the disease. In the first (with which balneology has nothing to do), sores and indurations, along with infiltrations of neighbouring glands, show themselves locally within the first three to six weeks. In the second period, there are hyperæmia and exudations on the cutaneous and serous surfaces, accompanied by inflammation of many of the lymphatic glands, with erythema, papulæ, and varicella-like eruptions. This is between the seventh and twentieth weeks. In the third period, the so-called *gummy* exudations, the syphilomata, appear, bearing a close resemblance to tubercle. The length of this stage is uncertain. It seldom commences within six months of the primary infection, but it sometimes accompanies the stage last mentioned; it first attacks the skin and mucous membrane and the cellular tissue beneath them, but the deeper-seated organs are also frequently attacked. When the fourth period has arrived, the symptoms on the surface have usually disappeared; the condition of syphilitic cachexia is established, the whole nutrition is disturbed, the internal organs suffer from new formations, visceral syphilis is produced. There is much wasting away of life and strength, while hydræmic, anæmic, and at times leucæmic complications, with other forms of disease, such as tuberculosis, occur.

Virchow divides the local phenomena of syphilis into the slighter and the more severe. On the whole, the slighter are the earlier, and the more severe are the later manifestations of the disease. The former are more of an irritative and inflammatory form; the latter, including syphilitic nodes, are of a more exudative form. Virchow has shown that the indurated chancre and the node are alike in their development, the node being the highest expression of the process. All the changes of nutrition caused by the syphilitic poison, the earliest and the latest, have the same anatomical foundation; but nothing has been discovered histologically characteristic of syphilis—nothing that is not found in other constitutional diseases.

The blood and the secretions of syphilitic affec-

tions can be pronounced with absolute certainty to be the conveyers of the poison—the semen and ovum with less certainty.

Although the key to the manifestations of syphilis is in a certain poisoned state of the system, it by no means follows that the blood must necessarily at all times contain the poison. On the contrary, the whole history of the stages of syphilis points to an intermitting blood-poisoning, originating from some permanently affected centres, for instance, the lymphatic glands. Under favouring circumstances, the poison contained and temporarily enclosed in them passes anew into the general circulation; and it is thus that the occasional latency of syphilis is explained, not that its real latency is so frequent as is often supposed.

One great advance in the study of syphilis of late years has been the recognition of many syphilitic affections of organs besides those of the bones, that is, of visceral syphilis; and besides this, we have learnt to look on syphilis not merely as a specific disease, but as one having a good many points of analogy with other dyscrasies. We also are more in the habit of individualising the patient and the disease,—the former according to his constitution, the latter according to its stage of development and its complications. The treatment has thus become much more rational; and, although mercury and iodine are still our chief remedies, they are used with more discretion, and more attention is paid to the conditions of healthy blood-making, especially, nourishing food and fresh air; and on the whole there is no more satisfactory method of treating syphilis than the balneological one, in conjunction with these two chief remedies.

In making this observation, the old notion, now only entertained in some places in Spain, that sulphur-baths have a specific effect in syphilis, is disowned. All experienced bath practitioners are now agreed that sulphur-waters only afford an admirable support to other measures employed against syphilis. Nevertheless, they believe that this support is given better by sulphur than by other waters; for instance, that rupia is more easily cured by a sulphur than by a salt spring.

According to Dr. Reumont, the following are the cases that do best under sulphur-water treatment.

a. In the cases of individuals who have been already subjected for a longer or shorter period to antisyphilitic treatment, and first those on whom no palpable signs of syphilis are to be found, or who have only some suspicious symptoms, such as rheumatic pains, the bath treatment becomes a sort of test and security. Next come convalescents, who are suffering more or less from the effects of medicines, and especially from mercurial courses. In these cases, also, the bath-cure is sometimes a test, for occasionally, after the symptoms of mercurialism have been cured, syphilitic symptoms reappear.

b. In case of patients, about whom there is doubt whether their symptoms are referable to mercury, to some other dyscrasy or to syphilis, sulphur-baths afford valuable means of diagnosis.

c. In syphilitic patients, who are suffering from a combination of syphilis with mercurialisation, or from rheumatism or gout, sulphur-baths serve as preparatory treatment.

d. Patients who, suffering from any form of constitutional syphilis, use the waters along with specific medicines, also obtain benefit.

The theory of the operation of sulphur-waters in

these cases is, that they act by causing a more rapid transmutation of tissue, by stimulating all the secretions—thus acting on the blood-preparing organs, and especially on the lymphatics, occasioning a resolution of the enlarged lymphatic glands, which we have above had occasion to consider as the special depots of the syphilitic poison.

The belief in the value of sulphur-baths in such cases, is supported by vast clinical experience not only in Aix-la-Chapelle, which is the chief German bath of the kind, and in Nenndorf—but also in the admirable sulphur-baths of Hungary, in the Swiss baths, and especially in those of the Pyrenees. French and German writers both give pretty much the same account of the operation of these waters.

The sulphur-water treatment is especially valuable for diagnosis. In spite of the improved diagnosis of late years, cases occasionally occur, which leave the physician in doubt, whether the symptoms are referable to syphilis or to mercurialism. Thus many forms of pains of the bones and joints and many neuralgias, particularly if they are of an irritative nature, become worse under the use of baths, and discover their real nature by developing characteristic syphilitic affections of the surface.

Very important for further treatment is the diagnosis of affections caused by mercury, from those caused by syphilis. Manifest symptoms on the mucous membrane of the mouth, sometimes elevations and swellings of it resembling *plaques*, occasionally small ulcers, pains in the limbs and joints, great lassitude and weakness, and other disturbances of the balance of the system, are usually of mercurial nature, and disappear fast under the use of baths. Other cases are, the important combination of syphilis and hydrargyrosis. Reumont is satisfied from his own experience, that mercury sometimes does not cure the syphilis against which it is directed, although it may operate to the extent of bringing on mercurial dyscrasy. Syphilis and mercurialism may co-exist in the same person. Such cases are among the most frequent in bath-treatment; and that treatment operates in two ways—first, by alleviating the hydrargyrosis, and secondly by supporting the medicinal treatment of the syphilis. Antimercurialists make use of cases of this kind, to deny the existence of constitutional syphilis, and to prove that the syphilitic symptoms are in reality mercurial. Their doctrine is thus formulated by Lorinser, ‘All those forms of disease, which constantly take a quick departure along with the exit of mercury from the system, can only be regarded as cases of mercurial dyscrasy. This dyscrasy is not completely cured until, under the continued use of iodide of potassium, no more mercury is recognisable in the urine.’ On this Reumont remarks, that the truth of the proposition that forms of syphilis badly treated with mercury, improve rapidly under bath-treatment, is a matter of daily experience, but not so the complete cure of the disease. Whoever knows how rare it is, even with the aid of electrolysis as well as the use of iodide of potassium, to discover mercury in the urine of patients undergoing a mercurial cure, will not attach much value to Lorinser’s test. J. MACPHERSON, M.D.

(To be continued.)

SMALL-POX caused twenty-four deaths in Vienna during the week ending May 23. The number in the previous week was nineteen.

ANATOMY AND PHYSIOLOGY.

LENHOSSÉK ON THE OCCURRENCE OF CARTILAGINOUS BODIES AND TRUE BONE IN THE PENIS OF AN ADULT.—Virchow's *Archiv*, vol. lx. Heft 1, opens with a paper by Dr. J. von Lenhossék, Professor of Anatomy at Pesth, illustrated by a plate, representing the dorsal and urethral bones, with the microscopic appearances, found in the penis of a man aged forty-two, who died of typhus. Rokitsky and A. Förster (*Handbuch der Speciellen Pathologischen Anatomie*, Leipzig, 1863) both mention the occurrence of fibroid growths and tumours, which became converted into bony plates, in the fibrous septa of the corpora cavernosa penis, &c., as occasional sequelæ of injuries and inflammations. M. Velpeau (*Nouveaux Eléments de Médecine Opératoire*, Paris, 1839, tom. iv.) and Cleland, have carefully described two such cases. (See also L. Stroh-mayer's *Archiv für physik. Heilkunde*, 1844, Heft 2.) In those cases where the microscope has been used, these bony plates of the virile organ have been found to be mere calcifications, so that A. Förster holds the occurrence of true ossification in the human penis as hitherto unproven. The present case is of peculiar interest, as there were not merely bony plates, but a regular series of these, and of cartilaginous bodies; and besides this, the hitherto doubtful occurrence of the formation of true bone is established by microscopic examination.

The penis in question measured 4.1 inches from the root to the tip of the glans, with a breadth of $1\frac{1}{2}$ inch at the widest part of the shaft—a little more at the glans. On first inspection a small nodule (*Höcker*) was noticed to the right of the vena dorsalis, at a distance of 2 inches from the tip of the glans. Otherwise it appeared normal. By palpation this nodule was found of bony hardness, and on the left side of the dorsal vein a second similar hard body could be felt, about $\frac{1}{2}$ of an inch higher up. At a distance of $2\frac{1}{2}$ inches from the tip of the glans, on each side of the pars cavernosa urethræ, a body of like bony hardness was to be felt. Besides these four bone-like bodies there was considerable induration and thickening on both the dorsal and the ventral aspects. The whole of the cartilaginous and bony growths were found in the trabecular tissue of the corpora cavernosa, and extended into the glans itself. To isolate these growths was a work of some difficulty. The formation of bone comprised, (1) a dorsal bone with an angular groove for the dorsal blood-vessels, and (2) a series of three ventral bones with angular grooves for the urethra (urethral bones); the cartilaginous formations comprised a median appendage of the dorsal bone, and a strong cornet-like body with three ventral appendages (one median and two lateral). These were of whitish colour, whilst the bones were decidedly yellow. The dorsal bone had a handle or manubrium, $\frac{1}{2}$ of an inch in length, which diverged into two sharply rhomboidal bony lamellæ, each about $\frac{1}{2}$ of an inch in breadth. The whole length of the dorsal surface was about half an inch in the middle line, or a trifle more, measured to either end of the fork, whose angle of divergence was 93° . The urethral bones were rather smaller, but of similar shape, the groove formed by the divergence of the forks for the urethra having angles of 95° or thereabouts. The principal cartilaginous growth was cornet or funnel-shaped, and is somewhat quaintly termed by the author *Amiculum*

chondroideum [he borrows this name from J. J. G. Schneller, *Deutsch-lateinisches Lexicon*, Leipzig, 1789.] The extreme length of the dorsal wall of this funnel was nearly 2 inches, whilst the ventral wall was only $1\frac{1}{4}$ inch. This body was chiefly situate in the glans, and commenced close to the meatus urinarius. The other pieces of cartilage were smaller. The microscope showed a good deal of elastic tissue, with bundles of connective tissue in these growths; whilst the 'bones' consisted of an outer layer of connective tissue, with some elastic fibres; of a middle transitional or ossifying layer; and of an inner, or true bony layer, with lacunæ, canaliculi, and Haversian canals. The author remarks that these growths, and the general fibroid changes, must have much impaired the erectile capacities of this organ. A friend of his, Dr. J. Rózsay, reports that he distinctly felt 'bones' in the penis of a patient who consulted him on account of a 'defectus erectionis.'

Professor C. von Sigmund (of Vienna) writes that he has observed (in the living) indurations of a gristly, or even bony hardness, in the penes of those who have suffered severely from syphilis. The corpora cavernosa, and usually the dorsal portion, were the seat of these indurations. In these cases, coitus was painful, though ejaculation was not prevented. He has noted five such cases, in which he believed the ossification to be in the lymphatics of the penis; in every case the organ was diminished in size. This opinion, however, is not yet confirmed by post-mortem or microscopic examination. Dr. von Lenhossék remarks that the three urethral bones of his case, viewed collectively, reminded him forcibly of the os priapi of certain animals.

W. BATHURST WOODMAN, M.D.

FELTZ AND RITTER ON THE ALKALINITY OF URINE.—V. Feltz and E. Ritter (*Journal de l'Anatomie*, Feb. 1874, p. 311) have conducted a series of observations on the human subject, and made experiments on dogs, upon this subject. They arrive at the following conclusions. 1. The urine is only very rarely ammoniacal except in affections of the genito-urinary apparatus. The occurrence of alkalescence in the great majority of cases is to be ascribed to defects in the vessels, or to the mixture of the urine with more or less altered albuminous substances. 2. Urine placed in contact with the ammoniacal ferment, whose activity has been tested by its action on a solution of pure urea, does not undergo the ammoniacal fermentation with such rapidity as might appear from its composition. 3. The urine of sound healthy animals exempt from vesical or renal affections, does not become ammoniacal by prolonged retention in the bladder, produced by different mechanical methods. 4. Catheters impregnated with the ferment are not sufficient to render the urine of healthy animals ammoniacal. 5. The urine becomes ammoniacal temporarily, when a catheter, impregnated with the ferment, is allowed to remain in the bladder. 6. The same effect is produced on introducing into the bladder a solution of the ferment, and retaining it by mechanical means for about twelve hours. 7. Uræmia cannot be ascribed either to the retention of urine, or to the carbonate of ammonia produced by the decomposition of urea; for the former of these two substances is innocuous, and the second does not produce convulsions, unless in concentrated doses, the production of which in the blood is difficult to admit. 8. The decomposition of urea into carbonate of ammonia only takes place

under the influence of a ferment or chemical agents which we have not taken into account here. This decomposition does not appear to take place in the blood, for injections of urea and the ferment did not produce uræmia. 9. The chloride, sulphate, phosphate, tartarate, benzoate, and hippurate of ammonia, when injected in sufficiently concentrated solutions into the blood, produce, from a physiological point of view, effects similar to those of carbonate of ammonia. These salts are rapidly eliminated by the urine and saliva; the tartrate and benzoate do not undergo their usual transformation. The urine never becomes ammoniacal; and the breath is free from ammonia. 11. These salts, though of such a strength in solution as not to dissolve the red blood-corpuscles, nevertheless modify the properties of the latter. This fact is demonstrated by examination with the microscope, and by analysis of the gases contained in the blood; the absorptive capacity of the red blood-corpuscles for oxygen is notably diminished; while, on the contrary, the resistance to the action of water and acetic acid is increased. WM. STIRLING, D.Sc., M.B.

MEDICINE.

WISLIZENUS ON TRICHINOSIS.—An original communication by Dr. A. Wislizenus, in the *St. Louis Medical and Surgical Journal* for July, 1873, gives an account of a small outbreak of this disease, characterised by several unusual features. He says, 'The family were Germans, who generally enjoyed good health, with the exception of occasional fevers. On January 25 I was called to see three sick children, of the respective ages of eight, ten, and twelve years. They had been ailing for about five days with symptoms of gastric catarrh, *i.e.* nausea, want of appetite, coated tongue, light pain in the bowels, diarrhoea, thirst, hot and dry skin, quick and feeble pulse, and general feeling of prostration. Upon inquiry I ascertained that the family had bought a fine-looking dressed hog; that they had cut it up and salted it, and that a small portion of it had been roasted and eaten by them a week previously. They stated also that part of the meat had not been sufficiently done. Three other children and three grown men, who had eaten freely of it, remained perfectly well. I took some pieces of the pork for examination. I gave one to Dr. Engelmann, who found some unencysted trichinæ in it. In the other pieces, I found them also, but not in great numbers, none encysted, not all even coiled. The trichinosis of that hog was therefore constated (*sic*) as a recent infection, which gave a better prognosis for the sick children. Two weeks after the pork dinner, I got a fourth patient. The mother had symptoms similar to those of her children. I considered her disease also as trichinosis, but she assured me that she had not touched or tasted any of that pork. Her prostration became quite alarming, and continued for a long time. It was highly interesting to me to ascertain, several weeks after she was laid up, that she had assisted in the cutting up of the hog, and that she had taken from a saw used on that occasion some small pieces of raw lean meat, tasted them herself, and given small bits to the same three children who were first taken sick. She could not be induced to believe that a few mere fibres of meat could produce so terrible a disease. I entertained no doubt that the

riddle of the true origin of the disease had been solved by this trifling circumstance. That the smallest piece of raw trichinous meat is far more dangerous than affected meat given in any other form, is self-evident. Three weeks afterwards the family hospital was increased by a fifth patient—a young man in their employ. He had several times partaken of the roasted pork, but remained well for nearly three weeks, when he was suddenly attacked. I considered his case also a trichinous affection in a milder form. In about a week he got up again; his œdema had disappeared, his appetite returned, and in a week more he seemed to be quite restored. My first patients, the three children, continued their slow course towards recovery. The youngest child, however, who from the first was more severely attacked, experienced a relapse, and died from exhaustion on April 6, eleven weeks after the commencement of her disease. When I arrived the funeral was already so arranged that I obtained only a chance, with the permission of the father, to cut a small piece out of the gastrocnemius muscle for microscopic examination. Never before had I seen a muscle so saturated with trichinæ. In a small piece of the size of a pin's head, I counted about a hundred. Some seemed to be entirely free, others showed the commencement of encysting, none were really encysted. Dr. Engelmann found some alive, and on putting them in a few drops of water, at blood-heat, they exhibited very active motions.' T. S. COBBOLD, M.D.

FAUVRE ON PULSATION OF THE SUBCLAVIAN AS A SIGN OF SUPERIOR DILATATION OF THE AORTA.—Dr. A. Fauvre writes (*Archives Générales*) that, contrary to what is observed under normal conditions, there may be noticed in certain cardiac affections peculiar pulsations in the carotid region, and at the base of the neck. That these pulsations originate in the passage of the blood-current through a large artery—the subclavian—may be shown in two ways: first, by placing the finger back of and below the tubercle of the scalenus anticus muscle, when this artery will not be found in its usual position; then by making compression over the seat of pulsation, when the pulse at the wrist is affected. If, on making this compression over the misplaced subclavian, the arterial walls be lightly impressed by the finger, a double vibratory tremor may be remarked. The first and most intense part of this is systolic, and is evidently produced by the rapid centrifugal passage of the blood-current. The second, of variable intensity, is caused by the return of the blood towards the heart; it is sometimes wanting.

Auscultation over the seat of pulsation demonstrates the existence of a double blowing murmur, evidently connected with the vibratory tremor above mentioned. The second part of this murmur is wanting when the second part of the tremor is absent.

In a number of necropsies of such cases, the existence of aneurism affecting the superior wall of the aorta has been ascertained. In these cases the subclavian, is found displaced, and overlapping to a certain degree the omo-hyoid muscle. It is at first uncovered behind the clavicle, and then becomes more superficial. Finally, it is sinuous—that is, too long for its channel.

The double tremor and murmur appear to be independent of any abnormal condition of the aortic orifice. The fact appears to be that the walls of the dilatation, true or aneurismal, having lost their

elasticity, allow themselves to become distended under the influence of the ventricular wave at the same time as the arterial system. But, owing to the impulsive force of the heart having been exhausted by the inertia of these walls, the arterial tension is lessened.

The diastolic reflux of a part of the contained blood results of necessity from this unequal subdivision of the blood-tension. It is the centripetal reflux which determines the diastolic murmur. The displacement of the subclavian is evidently due to elevation of the superior wall of the aorta. It is shown in the shortening of the course of the carotid and other vessels given off, causing them to become sinuous, and thus to give rise to the pulsations noted. If the aortic dilatation be equal over all parts whence the great vessels are given off, the various phenomena alluded to will be observed equally on both sides of the neck. If, on the contrary, it be greater near the aortic origin, or on the other extreme of the arch, pulsation, &c., will only be observed on the affected side.

We have here, then, a valuable aid in the diagnosis and prognosis of superior aortic aneurism. For not only may the extent and position of the enlargement be ascertained approximately, but, if in the progress of the case the vibration and murmur should disappear, we may hope that the aneurismal pouch is being filled with clots.

BOILEAU ON THE SPHYGMOGRAPH.—In a thesis for the degree of M.D. at Dublin, Staff-Surgeon Boileau discusses the value of the sphygmograph as a means of clinical research, and gives some interesting examples of its application in various morbid conditions. He points out, as the chief value of the instrument, that it not only affords a representation of the pulse with a truthfulness unattainable by any other known means, but gives a permanent record which may be carried all over the world for comparison and for instruction at any time.

Dr. Boileau refrains from any recondite disquisition as to the mechanical theory of the pulse, but he gives an explanation of the several elements of the trace, in which, in the main, he follows the views of Dr. Burdon Sanderson. As to the causation of the diastolic wave, he says that, on account of the retardation it experiences when it arrives at the mesh of capillaries, 'the blood is delayed in its passage through the artery, and this delay is represented in the trace by a corresponding elevation or curve in the down stroke; the blood-volume swells as it were by reason of the obstruction *à fronte*, and thus is formed what is called the diastolic wave.' Thus, on the question of the relation of dicrotism to arterial pressure, the author differs from the opinion in which the chief authorities on the sphygmograph are now agreed; namely, that increased dicrotism implies increased freedom of outflow from the arteries, and consequent diminution of arterial pressure.

Dr. Boileau rejects the modern improvements in the sphygmograph whereby more accurate and convenient means are afforded of varying and registering the pressure than in the original instrument of Marey. 'I have not yet seen any results follow the employment of varying pressures to convince me that it is absolutely necessary for clinical purposes

to estimate more accurately than can be done by the finger, the compressibility of the pulse.'

[We think that the author's opinion of the value of the sphygmograph will be still further raised if he obtain an improved instrument. Our own experience agrees with that of others that, in some cases, a pulse which to the finger appears small and weak, is shown by the sphygmograph to have unusual powers of resisting pressure. Moreover, even when the finger judges rightly, it fails to leave that exact and permanent record without which the mere shape of the pulse-curve can convey only imperfect information.—*Rep.*]

Among the tracings given as examples, several are from cases of alcoholism, two of which show rapid pulses with increase of dicrotism, but no tremor, while, in a third, tremor is manifested. Of the rest, the most notable are a tracing from a soldier, aged only twenty-one, convalescent from secondary syphilis, in which signs of arterial degeneration are apparent, and one taken in the sweating-stage of ague, when the pulse was 135 and temperature 103.4°, showing a rounded primary summit, and a dicrotic wave scarcely discernible. A. L. GALABIN, M.D.

MATERIA MEDICA AND THERAPEUTICS.

CHAUVEL AND VERNEUIL ON THE ADMINISTRATION OF CHLORAL IN TETANUS.—At a recent meeting of the Paris Société de Chirurgie, reported in the *Progrès Médical* of May 2, M. Chauvel read notes of two cases of traumatic tetanus treated by chloral, in doses averaging 37 grammes (about 1½ ounce) during the twenty-four hours. The chloral did not produce any relief of the symptoms, and both patients died.

M. Verneuil also read notes of two cases in which chloral given in doses averaging about a drachm and a half in the twenty-four hours in one case, and two and a half drachms in the other, cured both the patients.

Chloral has been administered in various ways in tetanus; and the objections to its administration by the mouth may be enumerated as follows. Some patients cannot swallow the medicine; in other cases a passing relaxation or none at all is the only result obtained by the administration of 15 grammes of chloral; and finally the patients may show serious symptoms which would make it dangerous to wait three, four, or five hours for the effects of the drug. If the chloral do not act, either the drug is of bad quality, or absorption does not take place, and then another channel must be chosen.

Injections have been tried, but this plan is as little to be relied on as the administration by the mouth; besides which it is necessary to move the invalid, which is always a serious inconvenience. In a painful surgical affection in which M. Verneuil could not give chloral either by the mouth or by the rectum, he made subcutaneous injections. These gave great relief; but in tetanus it would be necessary to employ large doses and to make numerous incisions, which would bring on local inflammation. Hence intravenous injections suggested themselves, and the first researches in regard to them were made by M. Oré, of Bordeaux. He has nevertheless been wrong in wishing to substitute intravenous injections

in all cases and at all times for other modes of administration.

The quantity of chloral necessary to put a patient to sleep was already known, and that quantity could easily be injected into the veins; but M. Verneuil did not inject from 150 to 180 grains into the veins of a tetanic patient without feeling much uneasiness. It is known that fifteen or thirty grains sometimes siterate or act very suddenly on certain patients. With regard to the facility of the operation, MM. Cruveilhier and Labbé have declared that it is not so easy as M. Oré has asserted; if the subject be fat or young, it will be difficult. If the malady be not arrested at the outset, it may be assumed that chloral will have to be given for twenty or thirty days, and it then becomes a question whether the vein shall be left exposed during all this time or a fresh puncture be made every time.

M. Verneuil does not absolutely reject M. Oré's method, but he would not believe himself authorised to begin the treatment of a tetanic patient by intravenous injections. Up to the present time, M. Verneuil has cured five cases of tetanus by the administration of chloral hydrate by the mouth, making a proportion of two-fifths of cures.

GAZEAU ON THE USE OF SULPHATE OF CADMIUM IN ACUTE URETHRAL BLENNORRHOAGIA.—After having ascertained that one of the best treatments for acute arthritis is the employment of injections of sulphate of zinc, frequently repeated in the proportion of one-third to one five-hundredth part, or most generally a fifteen-hundredth part, Dr. Gazeau has tried to substitute for it the sulphate of cadmium, which has a much more powerful action than the sulphate of zinc, its astringent action being more energetic and persistent. Dr. Gazeau employs in urethritis injections of sulphate of cadmium, varying from the thousandth to the eighteen-hundredth part. These injections, administered every two hours very rapidly, quiet the acute stage of blennorrhagia, which passes to the latent state. The treatment lasts from fifteen to twenty days.

During the first two days copaiba may be used in conjunction with this treatment.

In chronic blennorrhagia of some years' date, sulphate of cadmium is powerless. In certain cases, however, cures may be obtained by associating it with subnitrate of bismuth, according to the following formula:—

| | | |
|-----------------------|-----------|-------------|
| R. Distilled water | | 100·00 grs. |
| Sulphate of cadmium | | 0·07 |
| Subnitrate of bismuth | | 7·00 |

An injection of this should be used every time after urinating.

RAGLAND ON BROMIDE OF POTASSIUM FOR CONVULSIONS OF CHILDREN.—Dr. Ragland, of Sheltonville, Texas (*New Orleans Medical and Surgical Journal*, May, 1874), remarks that the presence of a small bolus of indigestible food, or of worms in the alimentary canal, are such frequent causes of convulsion among children that the popular mind holds the belief that worms are the cause in all instances, and will frequently desire the physician to prescribe an anthelmintic. In all cases of infantile convulsions resulting from nervous irritation, whether centric or excentric, he would give bromide of potassium with perfect confidence of controlling the convulsions, while at the same time endeavouring to

remove by appropriate means the cause, should he be able to discover it.

The following is his usual formula.

| | | |
|---------------------|-----------|-----|
| R. Potassii bromidi | | 3j |
| Tincturæ gelsemini | | 3j |
| Tincturæ Valeriani | | ij |
| Syrupi simplicis | | 3ij |
| Mix. | | |

To children under one year of age, one teaspoonful is given every hour till relief is given. This is usually obtained in a short time, after which the effect is continued by using the remedy less frequently, say at intervals of two or three hours. This he has used especially in the convulsions frequently complicating the fevers of children. In no case has it failed to afford the desired relief.

BLIGH ON BROMIDE OF POTASSIUM IN GONORRHOEA.—Dr. John W. Bligh, in the *Practitioner*, recommends that, as soon as a patient complains of gonorrhœa, bromide of potassium should be immediately commenced, and continued throughout the duration of the disease. As it is said to increase the acidity of the urine, an alkaline bicarbonate should be combined with it. The following formula has been found useful.

| | | |
|-------------------------|-----------|------------|
| R. Potassæ bicarbonatis | | gr. lx |
| Potassii bromidi | | gr. xc-cxx |
| Tincturæ hyoseyami | | fl3ss |
| Aquæ camphoræ | | fl3vss |
| Mix. | | |

One-sixth part of this mixture is to be taken three times a day, and once during the night, should the patient happen to be awake. Care should be taken not to administer a dose during digestion, as it may, by neutralising the gastric juice, interfere with the conversion of food into chyme.

If the disease be in the first stage, an injection of the salt is recommended to be used as frequently as opportunities allow. The following is the usual form and strength.

| | | |
|---------------------|-----------|---------|
| R. Potassii bromidi | | gr. cxx |
| Glycerini | | fl3ss |
| Aquæ destillatæ | | fl3vss |

Mix. One syringeful is to be used every four hours.

When the discharge has assumed the form of gleet, a similar injection, associated or not, as may be thought advisable, with some astringent, will be useful. Dr. Bligh also administers during this latter stage from fifteen to twenty grain doses, three times a day, combined with fifteen minims of the tincture of the perchloride of iron, and dissolved in some suitable menstruum.

There are certain accessories which should not be neglected. The bowels should be carefully regulated, the proper diet prescribed, and a total abstinence from beer and other stimulants insisted on. Rest should be enjoined, and over-exertion strictly avoided. The testicles should be supported by a suspensory bandage, and the genitals bathed from time to time, especially before retiring to rest. The flow of urine may be increased by the free use of diluents.

MATTISON ON DEEP INJECTION OF CHLOROFORM IN TIC DOULOUREUX.—Dr. J. B. Mattison, of Chester, New Jersey, reports to the Meigs and Mason Academy of Medicine, February 19, a case of tic douloureux in which various agents had been used with very trifling benefit. The man had in former years been troubled with a trigeminal neu-

ralgia, and afterwards with sciatica, which had continued for many years, during which time he had acquired the habit of using morphia hypodermically and in large quantities. This, however, afforded no relief from the facial pain. On December 22, 1873, one-third of a drachm of chloroform was injected near the infraorbital foramen by passing the needle beneath the upper lip, and carrying the point to near the emergence of the nerve, where the chloroform was discharged. A severe paroxysm followed, but much lighter and far less frequent. After the 27th, no recurrence of the paroxysm took place. During this time he was placed on good general tonics, and also received three times a day hypodermically 1-48th of a grain of sulphate of strychnia, and 1-60th of a grain of sulphate of atropia, which was continued for some time. No morphia was used after the 22nd. In three weeks all desire for the latter agent had been dissipated. Six weeks later, the man had entirely recovered his health.

PELTIER ON TRIMETHYLAMINE IN ACUTE ARTICULAR RHEUMATISM.—In an article in the *Progrès Médical* (1873-74) Dr. Peltier, of Sedan, analyses the documents which have been published up to the present time on trimethylamine, and shows that this drug fulfils the three following conditions, which are those of acute articular rheumatism. 1. It diminishes and suppresses the fever. 2. It diminishes and suppresses the articular congestion. 3. It diminishes and suppresses pain. Of forty-eight cases treated by trimethylamine, twenty-two were cured in less than eight days; eleven in from eight to fifteen days; and one from fifteen to thirty days; and eight were either very little or not at all influenced by the medicine. According to M. Peltier, no other medicine can lay claim to such results; and the cures will become more and more frequent when, instead of using trimethylamine, chlorhydrate of trimethylamine, of which it is easier to determine the dose to be given, shall be employed. The conclusions of the paper are as follows. 1. From a chemical point of view, it is preferable to use the chlorhydrate of trimethylamine as a therapeutic agent. 2. Physiologically, trimethylamine slightly stimulates the action of the skin, astringes the mucous membrane, acts as a sedative on the nerves, and a hyposthenic on the arterial system; it also seems to diminish the amount of urea in the urine. 3. With regard to its therapeutic action, trimethylamine has scarcely been employed in anything but acute articular rheumatism, in which it soothes the pain, removes the congestion of the articulations, and diminishes the fever. Taking everything into consideration, it seems to be the medicine which up to the present time has yielded the best results.

SMITH ON THE TREATMENT OF DIPHTHERIA.—Dr. J. Lewis Smith, at a recent meeting of the New York Pathological Society, after presenting a pathological specimen from a case of diphtheria, gave the following synopsis of his treatment.

This patient was treated with quinine, iron, and alcoholic stimulants internally. The quinine was administered in moderate doses; but in severe diphtheria and scarlet fever large or frequent doses of this agent are tolerated, and are sometimes apparently useful. When I entered on duty in the Asylum in the same epidemic, one of my colleagues was treating a patient of three and a half years, having severe scarlet fever and diphtheria, with two grains of quinine administered hourly; and though forty-

eight grains had been given in twenty-four hours, the pulse was 156 per minute, and the temperature $103\frac{3}{4}^{\circ}$, showing that there was not such reduction of pulse and temperature as ordinarily attends the employment of large doses of this agent. The patient recovered, the quantity of quinine administered daily being, however, reduced to twelve grains.

The local treatment in the case which I have related consisted in the application to the fauces, every three hours, of the following, which has given me better satisfaction than any other medicine for local treatment which I have employed:

R. Acidi carbonici gtt. v
Liquoris ferri subsulphatis ʒij
Glycerinae ʒj

The brush was employed in preference to the probang, as it is less painful, and, where there is a false membrane, does not produce hæmorrhage by its detachment.

The small room in which the child was treated was also filled, as far as possible, with steam. As steam or water softens the epidermis, so I believe it softens and aids in the removal of the false membrane, which is mainly epithelial, more effectually than any other local measure. In each of the shallow pans from which the steam was generated, a small lump of quicklime was placed, so that the steam was charged with particles of lime, which were quite perceptible in the breath. If much lime be added, the water becomes too thick or syrupy, so as to diminish evaporation, and therefore render the quantity of steam insufficient. The spray of lime-water, whatever may be its solvent effect, certainly renders the respiration in a close and hot room more tolerable, perhaps from its rapid absorption of carbonic acid.

FORMULARY.

VILLATE'S MIXTURE.—The original formula of this solution, as first composed by Villate, is as follows:

R. Liquoris plumbi subacetatis ʒj
Zinci sulphatis crystall.
Cupri sulphatis crystall. aa. ʒss
Aceti vini albi fl. ʒvjss

Dissolve the salts in the vinegar and add the subacetate of lead. Shake before using.

Dorvault, Bouchardat, and some other authors put ʒviii of vinegar instead of ʒvjss; but Dr. Notta does not think that this modification is of any advantage, and prefers Villate's original formula.

It is important that this preparation should be made as stated. Druggists very often substitute for the white wine vinegar a solution of pyroligneous acid, in which case the liquid acts like a powerful caustic, and the patient cannot bear its application. These two solutions can be very easily distinguished at first sight: when the pyroligneous acid is used, the solution, once settled, has a bluish hue; but when prepared with the white wine vinegar it has a greenish hue. This is a capital point, for surgeons have noticed a great difference in using both preparations on the same patient. The pyroligneous acid solution has produced excessive pains and serious symptoms of irritation and inflammation.

[This very complex and unscientific fluid is warmly alleged by Notta, and by a great number of surgeons, to be of capital service as a topical application to cancrus surfaces or cavities of bones, chronic fistulæ,

and the like. Dr. Railton, and recent American reports, speak very favourably of its use in diarrhœa. It should be diluted, in the first instance, with two or three times its bulk of water.—*Rep.*]

PUBLIC HEALTH.

ON THE USE OF ZINCED OR GALVANISED IRON FOR THE STORAGE AND CONVEYANCE OF DRINKING-WATER. BY W. E. BOARDMAN, M.D., OF BOSTON.*

(Continued from page 345.)

With reference to the second part of our first inquiry—namely, what are the actual products of this action of water upon the zinc?—the conclusions at which we shall be able to arrive will not be so definite. We know that various circumstances, conditions and processes combine to render water, in its ordinary state, a very complex fluid. Receiving its constituents from the air and ground, in various combinations, the laws of which are imperfectly understood, it contains mineral, vegetable and animal matter in suspension, and gaseous, organic and mineral matter in solution. The mode of combination of these various substances in solution cannot be determined, at least with the means at our command, at the present day. It is a popular custom, however, for chemists to ascertain, by analysis, the amount of each constituent, and then to calculate the probable chemical combinations which have taken place. Carrying out this latter idea, chemists have reported that they have detected the presence of various soluble salts of zinc in water which has been in contact with this metal; the sulphate and the chloride have been reported, principally, and, in some cases, the statement has been made that water has been found 'strongly impregnated' with these salts. The real basis of these conclusions is founded upon isolated chemical experiments, made in the laboratory, like the following:†

'Zinc is rapidly dissolved in a very dilute solution of common salt [chloride of sodium] in water, and may be found in the solution, or water, as the muriate [chloride] of zinc. This would be the action of the common salt in rain-water, and it is the source of the corrosion of zinc roofs.'

'Galvanised iron, introduced into a solution of copperas [protosulphate of iron] in water, very dilute, acts thus. I soon found iron-rust rapidly falling on the galvanised pipe. In a short time all the iron was precipitated from the water, and fell in a coat of rust, while its place in the water was supplied by zinc. In other words, copperas, or green vitriol, was exchanged for white vitriol.'

'Galvanised iron, in a mingled solution of salt and of copperas, such as is found in several wells in Lowell, is rapidly destroyed; the water becomes charged with salts of zinc.'

Without entering upon the palpable sources of error in the above experiments, judging them from the published account which is given here, it may be stated that the direct inference implied—that similar re-actions always take place between zined iron

pipes and water passing through them, and containing the above-mentioned constituents—is unwarranted.

At the request of the writer, Professor Wm. Ripley Nichols presents the following communication with reference to the action of water upon zined pipes, and the products of this action.

* Massachusetts Institute of Technology, Chemical Laboratory, Boston, December 24, 1873.

'My dear Sir,—With regard to the action of water on zinc, it is well known that, when zinc is exposed to moist air, it quickly becomes covered with a film of oxide, which soon changes, under the influence of the carbonic acid of the air, into a basic carbonate. The oxide at first formed has been regarded as a *suboxide* (Zn_2O), but is now generally held to be the ordinary oxide of zinc (ZnO). That this coating subsequently changes to a basic carbonate, and that the white compound of zinc, which is often found in suspension in water which has been in contact with "galvanised" iron pipes, is a (hydrated) basic carbonate, seems to be sufficiently well established. That the compound is not perfectly definite in its composition, but contains sometimes more, sometimes less, carbonic acid, in proportion to the oxide of zinc, is also an accepted fact.

'What, however, is the state in which the zinc exists *dissolved* in water, we do not know, and probably cannot know. Although it has been stated in some cases that a given water contained in solution so much *chloride of zinc*, or so much *sulphate*, such statements rest upon purely gratuitous assumptions.

'We have good reason to believe that absolutely pure water would have no action on absolutely pure zinc; but ordinary water contains a quantity, more or less considerable, of different salts, such as chlorides, sulphates, carbonates, and in what form the small amount of zinc in solution exists, it would be impossible to say.

'We know that zinc is attacked by a solution of chloride of sodium (common salt), and that a portion goes into solution, hydrogen being at the same time evolved. In the case of a strong solution of chloride of sodium, the amount of zinc that is taken up is so considerable, that it is not unnatural to suppose that a portion of the zinc exists as the double chloride of zinc and sodium; but as undissolved oxide of zinc is also a product of the re-action, and as the solution is found to be alkaline, it is probable that, at the same time, some compound of oxide of zinc and oxide of sodium (zincate of sodium?) is also formed.

'In the case of a drinking-water, which is a dilute solution of a variety of salts, the case would be very different, and although we know of this action of chlorides on zinc, we also know that nitrates and sulphates and other salts likewise attack the metal and are capable also of dissolving its oxide; we know further, that the oxide and all the carbonates of zinc dissolve in water containing carbonic acid, so that we are unable to say whether the trace of zinc found in solution existed as chloride, nitrate, or sulphate, or as a salt of some organic acid, as (acid?) carbonate (or carbonate held in solution by carbonic acid), or whether a portion existed in each and all these different states.

'I may, perhaps, make my meaning more clear by using an illustration. If we mix together very dilute solutions of chloride of calcium and of sulphate of magnesium, we obtain a mixture which is not distinguishable in appearance from the solutions from which it was produced. If we submit it to chemical

* From the *Fifth Annual Report of the Massachusetts Board of Health*. 1874.

† Extract from a report to the City Council of Lowell, Mass. 1842. From Appendix to 'Lead-Diseases,' by L. Tanquerel des Planches, Lowell. 1848.

examination, we find that it contains a sulphate (or sulphates) and a chloride (or chlorides); also, that it contains magnesium and calcium. Analysis does not, and cannot, show whether the solution contains chloride of calcium and sulphate of magnesium, or chloride of magnesium and sulphate of calcium, or whether it contains some chloride and some sulphate of calcium and some chloride and some sulphate of magnesium. The latter view, in fact, has the greater probability; the proportions in which the distribution occurs taking place according to some law at present not understood. But according to the fashion, formerly universal, which even now prevails to a certain extent, the solution, if analysed, would be said to contain so much sulphate of calcium and so much chloride of magnesium, and for this reason: If the solution be concentrated by evaporation, sulphate of calcium will crystallise out, and may be obtained nearly free from chloride of magnesium. This, however, does not prove the previous existence of all the calcium as sulphate, for the condition of things in the liquid is changed by concentration. It is a general law, that when solutions of two chemical substances are mixed, if such a re-arrangement of the acid and basic radicals be possible, as to form a compound, *insoluble* in the liquid employed, or a *gaseous* compound, such compound will be formed; but where no insoluble or gaseous compound is formed, we cannot judge of the change which takes place.

‘Therefore, I do not hesitate to say, that we do not, and cannot, know what compound of zinc is present in solution in the case of water which has passed through “galvanised” iron pipes.

‘Yours respectfully,

WM. RIPLEY NICHOLS.’

‘DR. W. E. BOARDMANN.’

Vauquelin and Deyeux,* Devaux and Dejaer,† Mallet,* Schaufële,* Gautier de Claubry,‡ Tardieu,\$ Pettenkofer,* Brande and Taylor,|| Bouchardat and Fonssagrives,¶ W. R. Nichols,** all state—indeed, it is a well-known fact—that zinc, when exposed to the action of common, potable water, acquires a coating of oxide, which is practically insoluble in water. This coating, subsequently, is acted upon by the carbonic acid, which comes into contact with it, and it results from this, that the layer is finally composed of oxide, carbonate, and a combination of these two, regarded as oxyhydrocarbonate of zinc by Pettenkofer.* By mechanical and galvanic action and solution, the removal of this layer is effected gradually, and the water then contains more or less of these compounds in suspension, while the remainder enters into solution.

This much, then, is all that can be stated positively, at present, with regard to the nature of the products in question.

In regard to the amount of zinc, in all forms, metallic or other, which may be present in the water, many influences come into consideration. The water may contain ingredients, abnormal in kind or quantity, which will act with unusual energy upon the

zinc, or it may be of such purity as to have but a slight action upon the metal. Again, as shown by Mallet,* imperfect construction of the material—if the iron be not properly freed from the initial rust or if the zinc be incompletely applied, will favour the corrosion of the zinc, for, as soon as the iron is exposed, the destruction of the zinc goes on more rapidly. The texture of the zinc, too, whether fine or coarse, affects the results.† If impure zinc be employed, it will be more readily destroyed. The length of time during which pipes have been in use, also, is to be taken into consideration.

The action of potable waters of the purity of the Cochituate is comparatively feeble. We have seen that this water, drawn through pipes which have been in use for eight or nine years, contained only 00·62 grain of metallic zinc to the gallon, while some chemists have reported the presence of from two to six grains ‡ in the gallon of other waters, and this latter fact is freely admitted by the manufacturers. It is to be observed, however, that in these instances of the presence of such a large amount of zinc, it is always in the form of the carbonate, principally, and the water presents a turbid appearance, which would deter most persons from using it for drinking or in cooking. In the experiments of Schaufële,‡ water allowed to stand in galvanised iron vessels for five days contained only traces of the oxide of zinc.

(To be continued.)

OBSTETRICS AND GYNÆCOLOGY.

LEVY ON ENDOMETRITIS CERVICALIS GRANULOSA.—Dr. Levy (*Ärztliches Intelligenzblatt*, February 4, 1874), states that granular ulceration of the os tincæ is a very frequent consequence of cervical endometritis. If the cervix be dilated by laminaria or sponge-tents, the same condition—elevated granular intensely reddened surface—as seen on the os tincæ is visible some distance up the canal, covered with a semi-transparent purulent layer of mucus. The position of the uterus is rarely normal, or only approximately so; in the majority of cases it is bent forwards; it is rarely retroverted, and when it is, the retroversion is so acute that the os is either behind or above the symphysis pubis. In either form of malposition, friction of the affected part against the vaginal walls exists. If the surface be wiped dry with cotton-wool, and watched, after a short time a brown or reddish brown film is formed, whilst from within the os there continually flows out over the swollen lips a glairy or purulent mucus. The raw granular surface, which was previously glazed, becomes gradually changed through this mucus trickling over it, from a transparent white to a dull grey. As often as this layer is removed, the same condition will reappear. If the cervix have been dilated, the same thing is observable within the canal. Healing begins at the junction of the vaginal mucous membrane with the hypertrophied os; by degrees it extends over the os tincæ and upwards into the canal. The mucous discharge becomes more glairy and transparent as the process continues, until finally only a cork-like

* Loc. cit.

† *Procès-verbal de la Séance*, publ. de la Soc. établie à Liege. 1813.

‡ *Annales d'Hygiène et de Médecine Légale*, t. 42, p. 347. 1849.

\$ *Dict. d'Hygiène Publique*, t. 3, p. 706. 1854.

|| *Chemistry*, Am. ed. 1863.

¶ *Journal de Chimie Médicale*, t. 10, p. 594. 1864.

** See communication in this Report.

* Pettenkofer, loc. cit.

† Loc. cit.

‡ *Boston Med. and Surg. Jour.*, Jan. 1871, p. 13.

plug of mucus is seen closing the canal. This plug of mucus the author has often observed to move synchronously with the act of respiration. No irritation of the os or cervix will cause its expulsion, which would be the case if the theory of Holst and Vierordt were correct, that the lips of the os were capable of expansion and contraction under certain stimulus, viz., coitus. The string of tenacious mucus found exuding from the cervical canal, was shown by Dr. Kristeller to be of the greatest importance in preserving the spermatozoa, but he at the same time believed it to be secreted partly by the internal surface of the uterus. Dr. Levy, by repeated experiments, has proved that it is secreted entirely by the follicular glands of the cervix.

Granular ulceration of the os depends, in the author's belief, in the majority of cases, on some flexure of the cervix, or on some swelling of the mucous or submucous membrane of the canal, and closing it. It is frequently accompanied with hypertrophy of the anterior lip of the cervix. This flexion and swollen condition of the cervical mucous membrane retards the natural flow of the menstrual blood, which becomes retained in the folds of the arbor vitæ, giving rise to irritation and subsequent abrasion and ulceration of its surface. During the first weeks of pregnancy it is not unusual to find abrasion of the os, which arises from a retardation of the backward flow of blood, and from the low position of the uterus causing constant friction of the os against the walls of the vagina. It entirely disappears as gestation advances.

Dr. Levy proposes to dilate the cervical canal by means of sponge or laminaria tents in all cases of granular ulceration of the os, in order to remove the primary cause of the affection. He states that he has employed them for some considerable time, and that this treatment has almost invariably been followed with the most happy results. At the same time he pays the greatest attention to the constitutional condition, and seeks to remove all causes of local congestion, loaded bowels, &c., as also to prevent friction of the raw surface against the vaginal walls by means of pessaries or cotton-wool plugs dipped in glycerine alone, or glycerine and some astringent. Ergotine dissolved in glycerine he recommends as an excellent remedy.

FASBENDER ON INTERCURRENT DYSMENORRHEA.—At a meeting of the Gynæcological Society of Berlin on February 3 (*Berliner Klinische Wochenschrift*, April 20) Herr Fasbender described a case of intercurrent dysmenorrhœa.

The person was a single lady, aged twenty-four, anæmic, with the periods quite regular. The 'flow' was always scanty, and was preceded for some days by intense pain at the hypogastrium and gastric disturbance. The last few years it was accompanied with a slight fluor albus. For two years the same troubles, together with leucorrhœal discharge, had occurred fourteen or sixteen days after each menstrual period. Vaginal examination showed acute ante flexion, endometritis, chronic colpitis, and erosion of the os; in the region of the ovaries, especially around the uterus, nothing abnormal could be found. A subsequent examination, fifteen days after the last period, along with a feeling of weight in the pelvis, proved that there existed an increase of the fluor albus.

From the above case the author endeavoured to show how inapplicable the ruling theory was, as

to the etiology of intercurrent dysmenorrhœa—the expression of a kind of incarceration of a follicle from some inflammatory process of the ovaries. He did not attach the chief importance to the pain, but to the congestive phenomena, and believed that further investigations would show that these complex symptoms, according to the menstrual theory of Pflüger, were connected with an increased reflex irritability. In the discussion that ensued it was the general opinion that the flexion could not be considered as the principal cause, otherwise this form of dysmenorrhœa would be of more frequent occurrence, but that it was a complex action depending on certain conditions of the nervous system, coupled with some derangement of the ovaries. Most speakers who had met with instances stated they had observed a bloody discharge occur at the same time.

W. C. GRIGG, M.D.

PSYCHOLOGY.

KOSTER ON UNRECOGNISED INSANITY.—Dr. Koster has for some time been engaged in describing a number of persons in whom the insanity was not recognised, albeit they were known to be lazy, incorrigible, always getting into trouble, &c. Some selections from Dr. Koster's 'gallery' have been already given in the LONDON MEDICAL RECORD, and we now give the chief points of the summary that he makes (*Irrenfreund*, no. 12). Hereditary taint, although the history was very difficult to obtain in many instances, was nevertheless marked, amounting in round numbers to 60 per cent. The development of the malady is threefold. It comes on either gradually from early youth, as a constantly increasing manifestation of mental defects, such as roguery or vagabondism; or else appears at puberty, or perhaps later still in life, after some such cause as injury to the head, blighted affections, excesses, fevers, &c. The course of the insanity is either by a slow increase of the symptoms, or by excitement, fury and destructive tendency. Hallucinations of the higher senses are rare, and still more so are fixed delusions. In one girl and in three men a state of dementia rapidly supervened with motor paralysis; whilst in two there were optimist feelings, and in the other two a state of melancholy. The form of the disease is not pure, but rather mixed. Based on a state of melancholy or moroseness there are frequently large and supercilious notions superadded. The melancholy takes an active form in the way of suspicion against the family surroundings and the world in general, disposition to show anger, and constant bemoanings and complaints. Sometimes the patients take to listless wandering about, at other times they fall rapidly into dementia. The individual symptoms vary according to the peculiar temperament of the person; some may be altogether absent, but there is in most, if not in all, instances an abnormal state of irritability, to which may be added lesions of common sensibility of the most various kinds, insane feelings amounting to fury of the highest degree. This irritability much resembles that seen amongst epileptics, who form the *enfants terribles* of asylums. It is especially among women that complaints are made, and then they assume the hysterical form, pointing especially to the præcordial region, the head, the uterus, or a general

feeling of weight and pain in the limbs. At times, however, the men complain also, and one is inclined to attribute to them either simulation or exaggeration. Most of the persons of this class are inclined to intrigue, lie and quarrel, and to shirk work. This shirking of work shows itself in different ways. Some will occupy themselves for a time in a light occupation; others only under constant supervision and stimulation, and even then they adduce the most trifling excuses to be spared the labour; whilst many are absolutely incapable of work in any form. One very striking phenomenon is an irremediable chattering, a sort of brain-diarrhoea, and they may be listened to for hours at a time without any definite conception of what they are talking about. Others, on the contrary, refuse to answer the questions put to them, or will only converse with certain individuals. Absolute and concrete delusions are seldom met with, though there may be an exaggerated self-feeling, and they talk of being 'occupied with their own affairs,' without time to attend to work placed before them. Periodical exacerbations are witnessed, chiefly shown in emotional excitement, and at times they amount to positive fury. It is now that attempts to escape oftenest occur, whereas, as a rule, in spite of their complaints and discomfort, they are well contented with the asylum. The bodily condition is mostly good, and many have an attractive appearance and intelligent expression. Notable bodily defects are wanting, though on close examination it is apparent that one may have a peculiar skull-formation, in another the face is non-symmetrical, and a third may show a decided scrofulous habit. Impulse to drink amongst the men, and sexual propensity in the women, have been said by some to be constantly met with, but this is not accordant with Dr. Koster's experience. An exact and scientific inquiry into the houses of ill-fame in large cities might discover that many of the denizens are persons of a low degree of intellectual power. It remains a fact that all these people have been hitherto wrongly estimated, and on the ground of public morality have been placed in inappropriate institutions; whence, on the supervision of an attack of melancholy or fury, they have been removed to an asylum as incurable or only capable, under constant supervision, of improvement. Good food, tepid baths, and injections of morphia, with rest in bed are the principal therapeutic measures. We may recognise here a group of cases which, from their development, cause, and symptoms, vagabond life, hereditary influence, irritability, and perversity, with periodic exacerbations and remissions, may be classed as 'deluded rogues and parasites of society.'

T. C. SHAW, M.D.

NEW INVENTIONS.

HAMPSON'S SUGAR-COATED PILLS.

The advantages of sugar-coating pills are beginning to be fully recognised in this country. We have received from Mr. Hampson, 205 St. John Street Road, London, E.C., specimens of useful formulæ; of which his list includes in all 157 varieties. He alleges, and we concur with the statement, that a coating of pure white sugar is the least objectionable covering that can be put upon pills, and besides being in itself unobjectionable, it has many advantages over

the earthy and resinous coatings adopted by some manufacturers. 1. Sugar being readily soluble, the pills begin to exercise medicinal action almost as soon as they are admitted into the stomach. 2. The sugar-coating has an important preservative effect on the pills coated. 3. The pills are less accessible to dampness and change, than other coated pills, and they keep their properties unimpaired for a very considerable time, and in any climate.

The pills manufactured in Mr. Hampson's laboratory are warranted to be made of genuine drugs of official potency. They are compounded with the utmost accuracy and care, and, being coated at a very low temperature, are uninjured in the process.

MISCELLANY.

PROFESSOR KUSSMAUL, of Freiburg, has been invited to succeed Professor Lebert, at Breslau, who is about to retire; but he has declined the invitation.

CHOLERA attacked 765 persons in Upper Silesia during the period from February 1 to April 28, causing 388 deaths.

PROFESSOR ROKITANSKY, of Vienna, has had the dignity of Baron conferred on him, as a Commander of the Imperial Austrian Order of Leopold.

HIPPOPHAGY.—During the first three months of 1874, 2,111 horses, asses, and mules, were killed for food in Paris. The number, in the corresponding periods of 1872 and 1870 were respectively, 1,275 and 989.

INFANT MORTALITY IN ST. PANCRAS WORKHOUSE.—The death-rate amongst the infants in St. Pancras Workhouse appears to have been exceptionally high during the past year. The inspector of the Local Government Board has reported that out of 407 infants in the workhouse under two years of age, no fewer than 89 had died, the mortality being at the rate of 218 per 1,000 per annum. The guardians have stated in their reply, by way of explanation, that there was in the workhouse a great number of deserted and previously neglected children, that some were brought up by hand, and that, as was well known, amongst such children the rate was always high. During the twelve months referred to, seven children died from the effects of wilful neglect and cold, previous to admission, and two from accidental causes. These deaths were therefore not due to ordinary causes. During four months of the year, measles of a severe form were prevalent among the children in the workhouse, and this also increased the death-rate.

THE MEDICAL PROFESSION IN AUSTRIA.—According to the latest data, the number of civil medical practitioners in Austria is 7,072, of whom 3,874 are doctors of medicine, and 3,198 surgeons. These are distributed as follows. In Lower Austria, 1,209 doctors and 619 surgeons, of whom 988 doctors and 79 surgeons are in Vienna; in Upper Austria, 121 doctors and 301 surgeons; in Salzburg, 32 doctors and 29 surgeons; in Bohemia, 1,014 doctors and 544 surgeons; in Galicia, 340 doctors and 369 surgeons; in Bukowina, 30 doctors and 38 surgeons; in Moravia, 229 doctors and 413 surgeons; in Styria, 213 doctors and 366 surgeons; in Tyrol, 351 doctors and 203 surgeons; in Silesia, 41 doctors and 96 surgeons; in Carinthia, 29 doctors and 99 surgeons; in Dalmatia, 85 doctors and 19 surgeons; in Trieste and the coast region, 81 doctors and 21 surgeons; in Carniola, 31 doctors and 61 surgeons; in Istria, 38 doctors and 12 surgeons; and in the county of Görz, 30 doctors and 8 surgeons. There are 2,354 military medical officers in the Austro-Hungarian monarchy, of whom 2,139 belong to the army, 63 to the marine force, and 152 to the Landwehr.

INTERMITTENT FILTRATION.—A recent report by Mr. Dyke, of Merthyr-Tydfil, contains an important passage in relation to the system of intermittent filtration. It has been suggested that when this system has been adopted for the disposal of sewage, the land will in time become clogged, and consequently less available for the purpose. So far, however, as Mr. Dyke's experience of the works at Merthyr-Tydfil goes, this does not appear to be the case. He says: 'I have recently tested the waters discharged from the sewage filtration-area at Troedyrhiw into the river Taff. The purified sewage is more free from pollution now than it was in July 1872, when it was shown to contain but 1 part of organic matter in 200,000. It is far purer than the water supplied to the inhabitants of Oxford, and to the householders in the neighbourhood of Lincoln's Inn Fields, in London.' This is strong evidence that no clogging of the soil has occurred in two years; for if its pores were occupied with organic matter, it is evident that the quality of the effluent water could not have improved.

ADULTERATION OF FOOD ACT.—At a meeting of the Midland Chemists' Association, the subject of the provisions of the Adulteration of Food Act was discussed, and it was determined to lay the following suggestions before the select Committee of the House of Commons, which has been appointed to consider the operation of the Act:—1. That in all cases the person buying goods for analysis shall divide the article into two portions, and shall hand over one portion, under seal, to the vendor for an independent analysis. 2. That referees shall be appointed by the Government, and that one of them should be a pharmaceutical chemist. 3. That in the case of an analyst reporting that an article is adulterated, which shall be proved to be genuine, the prosecutor shall be compelled to advertise the verdict in the newspapers in the district, so that the reputation of honest tradesmen may be protected. 4. That a guilty knowledge should be necessary to constitute an offence under the Act. 5. That, as it appears from a report of the examinations in committee that the members have an erroneous idea of the capabilities and respectability of the chemists in the country as compared with those in London, your memorialists suggest that one or more country druggists be examined before the Committee of the House of Commons.

EAU-DE-COLOGNE.—Dr. Chadwick, of Boston, while lately looking through the medical pamphlets preserved in the Boston City Library, came across an advertising circular entitled '*Vertus et Effets de l'excellente Eau admirable, ou Eau-de-Cologne, approuvée par la Faculté de Médecine, le 13 Janvier, 1727.*' From this it appears that eau-de-Cologne was originally concocted for a quack medicine. In the circular, which in type, paper, and language bears evidence of belonging to the last century, it is stated that this water was invented by an Italian, Signor Paul Feminis, an old distiller of Cologne.

It is described as a 'volatile spirit, extracted from the rarest and most delicate simples; an elixir which has the power of restoring the parts of the body that are attacked by any disease, or predisposition to the same, of fortifying and re-establishing their natural functions, of insinuating into them a moderate and living warmth, which, sympathising with their own, reanimates their vital forces, and aids the coctions.'

It seems to have been employed internally and externally, and to have been a sovereign remedy for apoplexy, paralysis, palpitation, obstructions of the liver, spleen, and kidneys, migraine, sore eyes, ringing in the ears, toothache, gout, burns, bruises, &c.

The virtues for which it has since become celebrated were apparently then thought to be unworthy of notice. From the history of this elixir the authors of quack medicines may, at least, learn the advantage of making them innocuous and sweet smelling; and when one thinks of the nauseous drenches and drastic combinations with which the million are now drenched by rival proprietors of pre-

tentious nastiness, whose eloquence is not less impressive than that of Jean-Marie Farina, of Cologne, and whose 'cautions' are not less solemn, it seems desirable that the old precedent should be revived. 'Opopanax' is not, we believe, announced as a rival of Holloway. But if the million must be quacked, and that seems to be still their desire and their destiny, the perfumer has an obvious advantage over the apothecary, which he seems to have forgotten.

A GOOD EXAMPLE.—The operation of the Adulteration Act in New York has given a great impetus to the consumption of milk in that city. According to the *Scientific American*, many restaurants have been established where the refreshments supplied are confined to a few simple articles of farinaceous food, and to bowls of milk and cream sold at moderate prices. The idea is said to have originated five years since with the proprietor of a small baker's shop in a humble locality, who had a monopoly of this kind of business for some time, and found it very profitable. Other persons, attracted by the rumours of his gains, opened larger establishments, which have culminated in full-blown restaurants. The more popular of these are said to be largely patronised by all classes. As much as 1,200 quarts on a cool day, and half as much more on a hot one, is the quantity of milk said to be consumed in a single establishment, by an average of 2,500 persons.

Since the penalties imposed by the Adulteration Act in London, and the vigilance of our milk analysts have rendered it possible to obtain pure and wholesome milk in the metropolis, it might be worth while to try an experiment of a similar kind. Milk, with the addition of aerated water and ice, forms a delicious and wholesome beverage in hot weather; and a most nutritious one in cooler weather, without the ice or aerated water. We see with pleasure that some milk shops in London are taking a step in the direction indicated, by selling milk and Apollinaris water by the glass at a low price.

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The London Medical Record.

WEDNESDAY, JUNE 17, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

REUMONT ON CONSTITUTIONAL SYPHILIS AND ITS MIXED TREATMENT BY MINERAL WATERS AND MEDICINES.

(Concluded from page 354.)

Besides the forms of combined syphilis just mentioned, there are others which must be considered as the dregs of past syphilitic processes—such as squamous exanthemata, slight affections of the periosteum, and of the glands. In most cases of this kind, the mercurial cure would be tried without success. These are the comparatively rare cases, which may be cured by the bath-treatment alone. It is impossible to say whether such cases are caused by the mercury in the system being rendered soluble, and being thus eliminated, or by the increased rapidity of tissue-transformation enabling the system to get rid of the syphilitic poison. Indeed, it is always to be remembered that a certain number of syphilitic cases attain a natural cure, irrespectively of all treatment.

As already said, the bath-treatment is especially a valuable preparatory for further treatment. Patients come to the baths, who have been some of them weakened to a great degree by the persistent and fruitless continuation for years of antisymphilitic treatment, while others have lost all receptivity of the action of medicines. In such cases, the bath-treatment rouses the system by the quickened change of tissue, and by its influence on the activity of the skin, to a state which makes it capable of receiving further treatment with advantage, and enables a smaller amount of specific remedies to be effectual. Experience has shown that bath-treatment, assisted with the use of mercury or of iodide of potassium, is perhaps the most effective measure against constitutional syphilis, and often gives favourable and permanent results, when other modes of treatment have failed. What characterises this mixed treatment specially, is the comparatively easy, quick, and permanent cure, which can be obtained with a minimum appearance of mercurial symptoms, with preservation of the strength, and with an avoidance of all disagreeable mercurial symptoms after the cure of the syphilis is complete. As to the medicines to be used along with the bath-treatment, it is only natural that there should be some difference of opinion among bath-doctors, according to their experience and their views as to the operation of certain modes of treatment.

As regards the properties of iodine, especially the iodide of potassium, the excessive praise which used to be formerly bestowed on this medicine as an antagonist of syphilis, is no longer accorded it. According to the experience of Reumont, and of most bath doctors, the union of the iodide of potassium with the

bath-treatment is most advantageous, in cases where, after repeated courses of mercury, the system has lost its susceptibility for that mode of treatment, when the symptoms of mercurial outweigh those of syphilitic cachexia, or when other circumstances, such as scrofula, anæmia, or tuberculosis forbid the use of mercury. Sometimes some of these circumstances are present in so-named tertiary cases, against which the reputation of iodine has been so high. But even in these, in the newer and more irritative cases, it is often necessary to make use of mercury. However, iodide of potassium has a very marked beneficial action against syphilitic pains of the bones or of the muscles, on which account it is often administered after the mercury. The mercury-attracting power of the iodide, on which the anti-mercurialists lay much stress for their theory of mercurial disease of the bone, is more than doubtful, and we know from Waller's experiments that elimination of mercury may take place spontaneously.

In all other, especially in all the more recent cases of the constitutional disease, and in cases where there have been relapses after cures, mercurial preparations are employed along with the bath-treatment. And the daily experience of all doctors of sulphur-baths show this treatment to be uncommonly quick, sure, and mild. In this mode of treatment, apparently, Sigmond's modified inunction-cure is preferred to all others. It is of itself an excellent way of introducing mercury into the system; it is doubly so when supported by the subsidiary and alternative action of sulphur-waters. The sulphur-waters containing some amount of chloride of sodium are especially useful, as it is probable that, in inunction, the mercury acts as a compound salt of chloride of mercury and chloride of sodium, which is found present in the perspiration. We must not, however, deny to the sulphur-waters which contain carbonate of soda, a special value, owing to their saponifying action on the skin. Of other mercurial preparations, the next most used, but decidedly of a second rank, is the sublimate (both internally as Zittmann's decoction, and externally as an addition to baths); the two iodides of mercury are both very uncertain remedies. The injections of sublimate, highly recommended by Lewin, have been little used along with bath-treatment. So also mercurial fumigations.

Other besides sulphur-waters may be found useful in constitutional syphilis, either for preparatory or for after treatment, or in the case of some complications, even during the specific treatment. These are, especially, the salt springs, the wells containing iodine and bromine, the indifferent waters, and the cold-water cure. For the after-cure, the various climatic resorts are of service, and mild southern winter resorts are recommended.

These baths and health-resorts may render various modifications of the usual sulphur-bath treatment highly rational.

We shall next consider those syphilitic forms and those combinations of them which have been found by experience to be particularly suited to sulphur-bath treatment.

Apart from the multiple infiltration of glands, which is one of the earliest and one of the latest symptoms of syphilis, that poison localises itself earliest, most persistently, and most frequently in the skin and mucous membranes.

In all cases of syphilis of the skin (syphilides) the bath-treatment shows itself especially efficacious in its operation, both on the eruption itself, and on the

skin, which is disordered in function. Yet some selection may be made among sulphur-waters according to the degree of their exciting properties, as connected with the amount they contain of common salt, of soda, or of lime combinations.

Of Aix-la-Chapelle, which contains some common salt, it may be said that it is especially valuable in syphilides inclined to ulcerate. Rupia ulcers are sometimes closed completely within two or three weeks, simply by the use of protracted baths. Such closure or scarring over is indeed somewhat imperfect, and is not sufficient to make a more complete and specific treatment of the constitutional malady unnecessary. The slighter forms of syphilides, especially roseola, often disappear under the use of the waters alone, while some forms rather extend themselves. The commonest form of eruption that presents itself at baths for treatment is the syphilitic form of psoriasis; next come the papular forms, and syphilitic ulcers of the skin, especially those that have developed themselves from soft nodules.

On no other portion of the body, where syphilis shows itself frequently, is it more difficult to determine whether the affection is syphilitic or mercurial, than when it is seated in a mucous membrane, especially in the buccal cavity. Here the bath-treatment is most useful in diagnosis; for, if the affection be mercurial, it disappears tolerably rapidly under energetic use of the waters. At first sight, mercurial and syphilitic spots in the mucous membrane of the buccal cavity, with their great resemblance to each other, especially diffuse angina, and stomatitis with tendency to the formation of erosions and of flat ulcers, also papular growths of the mucous membrane, the result of them, which often accompany chronic mercurialism, indeed even aphthæ from gastric causes, may sometimes for a moment be deceptive. If in such cases there be no other syphilitic symptoms, the diagnosis is often very difficult. Among the syphilitic affections of the mucous membrane of the mouth and tongue, perhaps there are none so often set down to mercurialism, and sent to sulphur-waters accordingly, as the greyish white spots, the so-called *plaques opalines*, though they have nothing to do with mercury.

In the treatment of affections of the mucous membranes, much less use has been made of late years at sulphur-baths of iodine than of mercury. Iodine was indeed more used formerly, because many of these affections were supposed to be the result of mercury, or of a combination of mercury and syphilis. It is indeed true that iodine often removes mucous *plaques* rapidly, but they are apt to recur. A mixed iodine and mercurial treatment is often used successfully in the more distinctive forms of syphilitic affections of the mucous membranes. In oozæna such a combination is often useful; at least, mercury alone is often insufficient. No affection shows itself more obstinate against all treatment than the so-called *plaques opalines*, especially in their highest stage of development, keratosis, of which, however, it may be doubted how far it actually belongs to syphilis.

Next to the skin and mucous membranes, syphilis most frequently attacks the periosteum and the bones, and affections of this kind are frequently the subject of treatment at baths. It was exactly these cases that the antimercurelists had selected as proofs of the injurious influence of mercury, but which are now known to have no connection with that metal. From the careful studies of Overbeck and Kussmaul on the

action of mercury and from the pathologico-anatomical researches of Virchow, it is now placed beyond all doubt, that the affections of the bones of syphilitic patients are not the products of mercury but of syphilis; that there are no diseases of bone, which are expressions of the mercurial dyscrasy. That in mercurialism no affections of the bones are present, except occasional periostitis and necrosis of the jaw, in consequence of stomatitis. This result of research is of vast therapeutic importance. Although, then, the syphilitic nature of affections of the bones is quite ascertained, yet it is at the same time not to be denied that the untimely, careless, or excessive use of mercury without curing the disease, leads, by breaking down the constitution, to the production of the worse forms of syphilis, and among them, favours the generation of bone disease. Of other dyscrasies, scrofula appears especially to favour the production of disease of the bones—and rheumatism and gout also help. All forms of disease of the osseous system may be met with at baths—from slight periostitis to exudations on the periosteum and inflammation of the bone, resulting in tophi, hyperostosis, caries, and necrosis. As to the special treatment of these affections, it need merely be said here generally, that the favourable results are got from a combination of varied applications of the waters, including the sulphur *Schlamm* baths with the use of iodine and of mercurial inunction. The waters in such cases support in a wonderful degree the action of the mercury in the resolution and absorption of the new formations of the osseous system. The chief value of the iodine is, as Sigmund has remarked, as a narcotic for the pain in the bones.

Of other so-called tertiary forms of syphilis, orchitis is to be met with pretty frequently in Aix-la-Chapelle. Its treatment in tolerably recent cases, and when syphilides are also present, is usually by mercurial inunctions and the bath-treatment. In the older cases, iodine often answers along with the baths, but it is frequently necessary to have recourse to the mercury.

The cases of visceral syphilis under treatment appear to become every year more numerous; this is doubtless the result of pathological investigation going hand in hand with clinical observation, and recognising many of the chronic affections of the viscera to be of syphilitic nature. There were indeed formerly cases of hemiplegia and paraplegia, and peripheral loss of sensation, and neuralgia, which were attributed to syphilis. But now we treat syphilitic affections of the liver and lungs, and affections of the nervous centres which do not always lead to paralysis, but may show themselves as epileptic convulsions, giddiness, headache, weakness of memory, affections of speech, &c.

Syphilitic affections of the liver, now that they are better known, are frequently treated at Aix. Dr. Wetzlar has given an account of eighteen cases of waxy liver. He treated them with sulphur-waters, in combination with sublimate and frictions; and only in the cases where mercury had been previously used, with iodide of potassium. The result was favourable. Several cases of hepatitis gummosa, even in its most advanced stage, have been treated of late years by Dr. Reumont; they were sometimes associated with other syphilitic symptoms. They were treated with energetic friction along with the ordinary bath-treatment, and generally did well. Wider experience of such cases is required, but there need be little doubt that in some of them the relation of sulphur-

waters to the liver must be of value; that is, their ascertained action on that organ.

Syphilitic phthisis developed out of chronic lobular pneumonia is sometimes treated in sulphur-baths. Grandidier gives an account of a case of that kind, which the drinking of the Nenndorf water along with iodide of potassium cured. A second case, with which asthma was associated, was cured in Nenndorf with sulphur-baths, inhalations, and inunction. Dr. Reumont has treated two characteristic cases, in which the smaller bronchial tubes and the sternum were affected, successfully by combined thermal and inunction cure. The syphilitic affections of the nervous system, above enumerated, are often treated at Aix. As to the etiology of such cases, it is very often difficult to determine what share mercury or rheumatism may have had—undoubtedly they were often predisposing causes to the affection of the nervous system. In these cases the combined treatment by sulphur-waters and inunction, with the intercurrent use of iodide and bromide of potassium, have frequently produced improvement, in some instances cure. It is obvious that in most such cases, especially when there is any congestive condition, the baths must be used carefully and with moderation. They act at once by improving the general state of the system, and also locally on the part affected, relieving the relaxation of the muscles and the rheumatic pains.

[The great characteristic of the bath-treatment as pursued at Aix is the inunction of mercurial ointment. This is carried on there to a great extent, most, perhaps by Dr. Brandis. It is surprising how little salivation occurs. Dr. Brandis employs acetate of alumina against it, as the French do chlorate of potass in the form of pastilles. The reporter has reason to regard the treatment of constitutional syphilis at Aix as very successful. Several cases of rupia and ecthyma, and of exostosis, and of the two combined, have recovered rapidly, and remained well at least for three or four years, and up to the present date. Warm bathing is the most important part of the balneological treatment, and it is very possible that the Germans attribute too much to the presence of minute quantities of chloride of sodium in their waters, as French do the presence of the sulphide of sodium or of its silicate. They very possibly both overvalue the test properties of their waters.]

The results of hydrotherapy confirm the view of the important share in the cure taken by the baths. The late intelligent Dr. Petri never saw more than passing benefit from simple hydropathic treatment in pustular, tubercular, or ulcerating syphilides, or in affections of the bones, or of the internal organs; whereas, like the late Fleury, he found treatment by inunction of iodine, when combined with hydrotherapeutic treatment, most efficient.

It would seem that all use of baths operates efficaciously, so far as it stimulates the system, quickens the transformation of tissue, and acts on the skin—the skin and the system generally acquiring increased receptivity of medicines, whether applied externally or internally. Practically, the reporter believes that constitutional syphilis can be treated most successfully at thermal baths having excellent local arrangements, such as Aix-la-Chapelle, Luchon, Cauterets, and others.—*Rep.*] J. MACPHERSON, M.D.

ON THE USE OF ZINCED OR GALVANISED IRON FOR THE STORAGE AND CONVEYANCE OF DRINKING-WATER. BY W. E. BOARDMAN, M.D., OF BOSTON.*

(Continued from page 361.)

2. We come now to the consideration of our second inquiry; namely, Do the products, resulting from the action of ordinary drinking-water upon the zinc of galvanised iron, exert a poisonous action upon the human system?

In this inquiry, it seems unnecessary to take into consideration such extraordinary idiosyncrasies as are shown sometimes, in the inability of individuals to take iron in any form, even in small amounts, or to receive the perfume of a rose without causing asthma. It is not to be denied that a similar extreme susceptibility to some property of zinc may be the occasion of analogous effects.

It is to be premised, also, that we are not to include in our conclusions the results which may be due to water unfit for drinking purposes, and which may contain ingredients that would act energetically upon zinc, and contain an unusually large amount of the soluble compounds of this metal.

We have, then, to consider the effects of the oxide, the carbonate, and the compounds which occur in solution.

The oxide of zinc, first prepared by Hellot, in 1735, has been employed extensively since his time, both as a medicine and in the arts. Most authorities assert that it is innocuous, while some entertain suspicions of, or attempt to prove, its poisonous character.

J. Johnstone, † not including zinc among the mineral poisons, relates, from his own experience, that ten grains of the oxide, taken daily for more than three weeks, were innocuous in the case of a boy about fourteen years of age.

MM. Vauquelin and Deyeux, ‡ on the ground that the oxide, resulting from the action of potable water, is not injurious, recommended the use of zinc in the manufacture of reservoirs and water-pipes. This opinion was confirmed by Devaux and Dejaer, § and, a few years later, Orfila § expressed a similar conviction. MM. Merat and Lens, || after enumerating the various uses to which this oxide may be put, remark, 'Some writers state that it sometimes gives rise to colic, a phenomenon which we have never observed.' They refer, also, to authorities, cited by J. F. Gmelin, ¶ who ascribe to it an irritant action, 'which, we believe, is not a fact.' Christison ** makes no reference to any injurious results from the internal use of this oxide, except that he coincides with Orfila, in his estimation of the results obtained by MM. Vauquelin and Deyeux. He also remarks, that 'it does not appear that workmen, who are exposed to the fumes of zinc, ever suffer materially.' Heller †† went so far as to state that this oxide might be given up altogether as a medicine, since,

* From the *Fifth Annual Report of the Massachusetts Board of Health*. 1874.

† *Med. Essays and Observations*. 1795.

‡ *Loc. cit.*

§ *Toxicologie Générale*. 1818.

|| *Dict. de Matière Médicale*, t. 6. 1834.

¶ *Apparatus Medicaminum*, vol. i. p. 286. 1795.

** *Treatise on Poisons*, Am. ed. p. 389. 1845.

†† *Archiv. f. Physiol. Heilk.* 1847.

being insoluble, it passes through the intestinal canal as inert matter.

M. Blandet* reported cases of supposed poisoning by the fumes of the oxide of zinc. MM. Guerard† and Levy‡ and others, denying the connection of cause and effect in these cases, coincide in the statement that analogous accidents do not ensue from the internal administration of this compound. M. Bouchut,§ in an elaborate memoir to the French Academy of Sciences, gives an account of the action of oxide of zinc upon the human system. He says, in doses of one to six grammes daily it never occasioned any gastric disturbance; occasionally it gave rise to sleeplessness and restlessness at night. He gives, also, a critical analysis of the classical cases of supposed poisoning by the oxide, which were reported by Blandet in 1844, Bouvier, Landouzy, and Maumené in 1850, and shows conclusively that the ill effects in these instances were due to other causes.

In a review of the last-mentioned paper, M. Chevallier|| confirms the opinions of M. Bouchut, and concludes that the oxide of zinc is incapable of producing death, or even of causing any serious effects. He also calls attention to the observations by Michaëlis of Tubingen,¶ who stated that he occasioned the death of dogs with daily doses of a few grains of the oxide, a result contrary to those obtained by MM. Flandin,** Orfila,†† and Bouchut.§ M. Bouchut repeated the experiments upon which Michaëlis founded his opinion, but with negative results.

Pereira‡‡ remarks that this oxide may be taken, in small doses, for a considerable period, without causing any obvious effects; in large doses it sometimes causes temporary giddiness and inebriation. By long-continued use, however, he says, it acts as a slow poison; in proof of which he cites a case|||| where twenty grains were taken daily for about five months. Rapid recovery, however, ensued as soon as the administration of the drug was discontinued. He refers, also, to the cases mentioned above, which were confuted by M. Bouchut and others.

Tardieu states explicitly that zinc imparts no poisonous qualities to water—a fact which has been proved by theory and confirmed by experience. He refers to facts cited by M. Boutigny,¶¶ who attributed poisonous qualities to water collected in zinc reservoirs, and remarks that they have not been confirmed and must be regarded as absolutely exceptional, and, without doubt, were due to some special accidental circumstances.

Oesterlen*** states that the action of this oxide, when taken internally, is very slight, even in large doses, and expresses his doubts as to the efficacy of the drug, so long accepted, in various diseases. When given to patients in large doses, or for a long period, he says, it may give rise to unpleasant symptoms; yet 'patients in the Paris hospitals have recently taken

one to two ounces daily, and Trousseau* has given ten grains and more, daily, to young children, even without perceiving any deleterious effects.'

Schlossberger,† Michaëlis‡ and others have detected the presence of the metal in several of the secretions of the body. Van Hasselt§ confirms these facts, and asserts that all compounds of zinc, when introduced into the stomach, are transformed immediately into albuminates, in which form they enter the circulation. He gives his assent to the occasional production of what he terms 'zinc-dyscrasia,' referring to the above cases reported by Pereira. In regard to the cases reported by Blandet (see above), and similar ones by Becquerel, Elfes, and Rust, however, he coincides with the more general view, that they were probably due to other causes, which conclusion, he remarks, is all the more probable from the fact that the symptoms disappeared rapidly on the removal of the supposed cause. The same argument might, with reason, have been applied by himself to the cases which he cites from Pereira in proof of the actual occurrence of 'zinc-dyscrasia.'

Dr. Herpin|| remarks, 'The oxide of zinc is perfectly harmless, and may be administered even in doses of six grammes daily, which may be continued for any length of time.'

Greenhow¶ mentions a case of what he terms 'brassfounders' ague,' which, he says, is occasioned by the fumes of deflagrating zinc. These fumes are zinc vaporised in a metallic state, and changed into the oxide by contact with the air.** This case was similar to those reported by Blandet and others, to which we have already referred, the conclusions in all of which were shown to be erroneous.

Stillé,†† after citing several reported instances of the ill-effects of this oxide, remarks: 'Yet effects of this kind cannot be of ordinary occurrence, for we find that Home‡‡ sometimes gave as much as forty grains a day without injury; that Sieveking cured a case of epilepsy in which thirty-six grains of the medicine were taken three times a day, without any unpleasant effect whatever.'§§ He refers, also, to the opinions expressed by Dr. Herpin, and quoted above.

MM. Bouchardat and Fonssagrives,‡ also, have shown that the oxide which may be contained in drinking-water is innocuous.

Wood and Bache,||| referring to reported cases of zinc colic,¶¶ remark: 'This statement, is, however, is to say the least, very questionable.'

Hirt*** remarks that some workers in zinc are liable to the ordinary affections to which founders and metal-workers generally are exposed, but that specific effects of zinc (referring to the oxide) have never been proved; that the digestive organs are not affected in the least, a fact upon which he satisfied

* *Bulletin de l'Académie*, Feb. 17, 1844.

† *Annales d'Hygiène*, t. 33, p. 462. 1845.

‡ *Traité d'Hygiène*, &c. 1850.

§ *Annales d'Hygiène*, t. 47, p. 5. 1852.

|| *Id.* t. 47, p. 55. 1852.

¶ *Archives Générales de Médecine*, t. 30. 1852.

** *Annales d'Hygiène*, t. 47, p. 38, 1852.

†† *Toxicologie Générale*. 1818.

‡‡ *Elements of Mat. Med. and Therapeutics*, vol. i. p. 677. 1852.

||| *British and Foreign Med. Review*, July, 1838.

¶¶ *Annales d'Hygiène*, t. 17, p. 281.

*** *Handbuch der Heilmittellehre*, p. 165. 1856.

* See also Report by M. Bouchut, *loc. cit.*

† *Arch. f. Physiol. Heilk.* 1848.

‡ *Loc. cit.*

§ *Allgemeine Giftlehre, übersetzt aus dem Holländischen* von Dr. J. B. Henkel, p. 322. 1862.

|| *Du Prognostic et du Traitement de l'Épilepsie*. 1852.

¶ *Medical Times and Gazette*, vol. i. p. 227. 1862.

** M. Lévy, *loc. cit.*

†† *Therapeutics and Materia Medica*, 2nd ed. vol. ii. p. 138. 1864.

‡‡ *Clinical Experiments*, p. 220.

§§ *On Epilepsy*, p. 274.

||| *United States Dispensary*, 12th ed. 1865.

¶¶ *Chemical Gazette*, September 16, 1850.

*** *Die Staubinhalations-Krankheiten*, p. 99. Breslau. 1871.

himself by very extensive observations and inquiries.

Dr. Winsor,* of Winchester, Massachusetts, in a recent report, states that it is neither plain, nor is it at all probable, that any person has been in any way poisoned by drinking-water which is impregnated with zinc, in the form of oxide or carbonate. In this opinion, he observes, he is confirmed by inquiry made of skilled analytical chemists, of experts in materia medica and toxicology, manufacturers of zinc pipes, house-painters, and others.

The board of water-commissioners of Melrose, Massachusetts, in 1871, issued an official circular to 'Spot Pond Water-Takers in Melrose,' in which they urged the immediate removal, or the discontinuance of the use, of galvanised iron service-pipes. The immediate cause of this action on the part of the commissioners seems to have been the occurrence of some cases of sickness, one proving fatal, in the family of the chairman of the board.† The attending medical adviser of the family pronounced them to be cases of zinc-poisoning, and J. R. Nichols & Co., of Boston, assent to this opinion, having made an analysis of this water drawn through and confined around zinc pipes. In this analysis they state the amounts of oxide and carbonate of zinc found in the specimens, and remark: 'It is proved by our investigations that the use of galvanised iron service-pipes in conducting Spot Pond water is highly dangerous to health, and should under no circumstance be permitted.' An associate of the medical attendant in the above-mentioned cases made a *post mortem* examination in the fatal case, and reported that he found evidences peculiar to zinc-poisoning, though he does not state what these appearances were. As no other fatal case is on record, the accuracy of observation, in this instance, may, with good reasons, be questioned. The history of the cases alluded to does not furnish evidence adequate to establish the correctness of the opinion given as to the nature of the illness, in the way of cause and effect.

In another case, communicated by Dr. Bronson, of Attleborough, Massachusetts,‡ the indefinite symptoms, presented in the report, would point as well to other causes as to mineral poisoning. It seems impossible that in less than two months—the period in this instance—symptoms such as described could have been developed by the comparatively small amount of the metal which would be received into the system from the water. Having in mind the variously confirmed facts which are presented in this paper, it must be said of this case, as of the others, that the conclusions are untenable.

From this *résumé* of opinions and facts, it may confidently be asserted, that the oxide of zinc, as it occurs in drinking-water, is absolutely harmless.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

VULPIAN ON THE MOVEMENTS OF THE HEART. Dr. Vulpian (*Gazette Hebdomadaire de Médecine et de Chirurgie*, May 8, 1874) administered curare to a dog

and then opened the chest, exposing the heart. The movements were too rapid to obtain any exact data of the contractions of the cardiac cavities; he therefore passed a gentle current of electricity by means of an induction instrument. As soon as the rheophores were applied to the pneumogastric nerves, the heart stopped. 'It stopped at the diastole.' The auricle was distended, the rheophores were removed, and immediately the auricle was emptied and the ventricle contracted. In order to diminish the rapidity of the beats, an infusion of about 25 centigrammes of the leaves of digitalis was injected into the left femoral vein, and was repeated till 90 centigrammes had been used. The effect on the heart was slight at first; gradually the movements became slower, and after each diastole there was a long pause. Electricity was again applied to the pneumogastric nerves, and the combined actions carefully noted. The following were the conclusions obtained.

1. The auricles in mammalia have a very distinct unmistakable systolic movement, which immediately precedes the systolic movement of the ventricles.
2. There can be several contractions of the auricles to one of the ventricles.
3. The revolution of the heart begins with the systole of the auricle, and finishes with the diastole of the ventricle.

PARROT ON NEWBORN INFANTS.—In a clinical lecture delivered at the Hospice des Enfants Assistés, May 6, 1874, M. Parrot (*Gazette Hebdomadaire de Méd. et de Chir.* May 8, 1874), defined the expression new-born infants as indicating a child, viable or non-viable, born at full term or not, but not having exceeded the age of six weeks. Up to that age, the pathology is the same, the diseases undergo the same changes, and it is the period of certain physiological modifications effected after birth.

A fœtus differs from an infant in early life chiefly in the circulation. By respiration the external air is sucked into the meshes of the lungs, to be brought into contact with the blood upon which it has to act. The umbilical cord, the ductus arteriosus, and the foramen ovale, now no longer have a part to play, and gradually become obliterated. The cord dries up, and is thrown off between the fifth and sixth days. The stronger the child, the more rapid is this process. The intra-abdominal portion retracts and is obliterated in the vast majority of cases without any accident; but under certain conditions and in exceptional cases, it is the starting-point of a phlegmasia of the veins to the great danger of the infant. At birth it is not uncommon to find the foramen ovale presenting an ovoid aperture. Generally, at birth or a few days afterwards, the anterior border of the valve extends beyond the margin of the foramen ovale; but its closure is not always complete, and the admixture of the two kinds of blood is still possible under certain circumstances and conditions. In the left auricle, the orifice of the canal which takes the place of the foramen ovale is situated at the anterior and inferior part, between the two pillars which limit the valve.

Alvarenga found the foramen ovale only completely closed in eight cases out of 243 infants, between the ages of one day and a year. M. Parrot, in sixty-two children from one day to two years old, found the foramen closed in only four children. In adult life the proportion is no longer the same. M. Parrot examined fifty-two hearts, from the age of nineteen years to seventy-five; the sexes were about equal. In twenty-six cases he found the foramen still patent.

* *Boston Medical and Surgical Journal*, vol. vii. pp. 12 and 238. 1871.

† *Boston Journal of Chemistry*, vol. v. 1871.

‡ *Boston Med. and Surg. Jour.* vol. viii. p. 189. 1871.

This persistence of the foramen he believes to depend on the position of the two orifices. It results from this arrangement, that when the blood tries to flow from the left auricle to the right, it finds an insurmountable barrier; and even when the opening is not closed it is very probable that the pressure on each side is equal, so that no mingling of the two bloods can take place. If from some cause the equilibrium be destroyed, as when the pressure on the right side of the heart is increased, the blood flows into all accessible parts, and the foramen ovale performs probably a very important part. Organic diseases of the heart, of the respiratory organs, and ailments from cardiac enervation, frequently produce this result. It is probably the repeated action of these causes, compelling the blood frequently to go the reverse way, that keeps the orifice open; and to this cause may be attributed the non-obliteration of the foramen ovale in the majority of cases. The author found the ductus arteriosus obliterated thirty times out of thirty-six. A valve placed at the orifice of the canal in the aorta prevents the passage of blood backwards, and it early becomes obliterated.

W. C. GRIGG, M.D.

ARLOING AND TRIPIER ON THE PERSISTENCE OF SENSIBILITY IN THE PERIPHERIC ENDS OF CUT NERVES.—At a recent meeting of the French Academy (May 25) the authors described some experiments (on horses, asses, and mules chiefly), in reference to this subject. The following is their *résumé* of results.

1. The facial and the spinal nerves of solipeds and rodents possess recurrent sensibility as well as those of carnivora.

2. To find recurrent sensibility most readily, one must go to the periphery.

3. The peripheric end of the branches of the trigeminus nerve is sensible. This sensibility is somewhat difficult to demonstrate; still it exists.

4. The peripheric end of the nerves of limbs is also sensible. The sensibility may, however, disappear towards the nerve-trunks.

5. In any case, the sensibility of the peripheric end is due to the presence of nerve-tubes, the relations of which with the trophic and perceptive centres have not been interrupted by the section.

6. The absence of these tubes implies insensibility of the peripheric end.

7. These tubes proceed from the fifth pair, for the facial; from neighbouring nerves, and occasionally from nerves of the opposite side, for sensitive nerves; from neighbouring and homologous nerves, for the mixed nerves.

8. These recurrent nerves rise more or less high in the trunk of the nerve to which they are connected; their number diminishes from the periphery to the centre.

9. The return of these fibres may take place before the termination of the nerves, but the termination is the part where it is made by preference.

10. For several reasons, MM. Arloing and Tripier think that the sensibility of the peripheric end belongs to all nerves; and that it probably exists in all animals of the class mammalia at least.

ALEX. B. MACDOWALL.

SLAVJANSKY ON RETROGRESSION OF THE GRAAFIAN FOLLICLES.—Slavjansky (*Archives de Physiol.*, 1874, p. 213), in Ranvier's Laboratory, has investigated some points in connection with the

anatomy and physiology of the ovary in the human subject. He sums up the results of his researches thus. 1. The Graafian follicles are developed from the primordial follicles, and acquire a greater or less degree of maturity during the whole of life, from the first month after birth till about the age of forty. 2. The greater part of the follicles are not ripe, do not burst, and do not discharge their contents, but undergo atresia, presenting an almost complete analogy with that of the formation of the corpora lutea. 3. The development and maturation of the Graafian follicles are not produced periodically in a regular manner, and no connexion exists between them and menstruation. 4. Menstruation constitutes a physiological phenomenon, quite independent of the development and maturation of the follicles. 5. The rupture of follicles more or less mature always bears a certain relation to congestions of the genital organs, produced by any cause whatever. 6. There exist certain maladies (ague, poisonings, &c.), which produce atresia of the follicles at different periods of their development, after a parenchymatous inflammation of the ovary.

WM. STIRLING, D.Sc., M.B.

RECENT PAPERS.

On the Development of the Institutions for the Study of Physiology and Theoretical Pathology in the Universities of Leipzig, Prague, Vienna, Breslau, and Berlin. By Professor P. L. Panum. (*Nordiskt Medicinskt Arkiv*, vol. vi. part i.)

The Vertebral Theory applied to the Skull. By C. K. Hoffmann. (*Nederlandsch Tijdschrift voor Geneeskunde*, 1874.) The most Recent Researches on the Structure and Growth of Bones. By T. Zaaier. (*Ibid.*)

PATHOLOGY.

WALDEYER ON RETROPERITONEAL HERNIA, AND THE ANATOMY OF THE PERITONEUM.—Professor Waldeyer, of Breslau, republishes in Virchow's *Archiv*, Band lx. Heft 1, a pamphlet originally written for private circulation in 1868.

Retroperitoneal Hernia.—In the *post mortem* examination of a robust man who died of double pneumonia at the age of forty, there was found a perfectly developed retroperitoneal hernia, which comprised the whole of the small intestines. Since the publication of Treitz's classical monograph (*Hernia retroperitonealis, ein Beitrag zur Geschichte der innern Hernien*, Prag, 1837) but few such cases have been described.* In this case the colon occupied its normal position. The great omentum, rather fatter than usual, concealed the small intestines; when this was reflected, it was seen that the coils of bowel were enclosed in a rather thick whitish sac, which included the whole mass of the small intestine.

* The author refers to Gruber, *Petersburg. Medizin. Zeitschrift*, 1861, and Virchow's *Archiv*, Band xlv. S. 215, for reports or reference to thirty-seven cases; also to three described by Eppinger lately (*Prager Vierteljahrschrift*, Band cviii. 1870); which, with the one above, make forty-one cases of retroperitoneal hernia already recorded. He does not seem to have noticed Dr. Biesiadecki's cases (see a report by Dr. Pye-Smith in LONDON MEDICAL RECORD, vol. i. no. 15, p. 233), or Kundrat's (referred to in LONDON MEDICAL RECORD, vol. i. no. 13, p. 199); nor is it clear that he includes Dr. Pye-Smith's two cases in *Guy's Hospital Reports*, 3rd series, vol. xvi.—*Rep.*

This sac had both the appearance and the structure of serous membrane, and was closely connected on all sides with the parietal peritoneum of the posterior wall of the abdomen, as well as with the peritoneum of the ascending and descending colon, its structure and texture being identical. It had numerous vessels of its own, with ramifying fat; it was quite transparent, and free from any signs of peritonitis. A median incision made it easy to remove the mass of intestines. The mesentery was quite normal. From the interior of the sac, it was easy to discover that its neck (*Bruchpforte*) corresponded to a point very nearly opposite the cæcum; the lower end of the ileum passed through this, and dragged upon the cæcum. The opening was nearly circular, as large as a two-thaler piece; its edges slightly thickened. The inferior mesenteric vein arched over the upper edge and free border of the opening. There were no signs of strangulation, and the coils of bowel could be easily drawn into and out of the sac. This case was a complete retroperitoneal hernia of the kind described by Treitz (*loc. cit.* p. 27) in his fifth case. The bowel had forced its way into the duodeno-jejunal fossa, and had gradually pushed the right fold of the descending mesocolon before it, and thus formed a sac for itself. The neck of the sac had originally lain higher, at the junction of the duodenum with the jejunum, and had thus been forced lower and lower with the weight of the mass. Waldeyer thinks the inferior mesenteric vein might easily have given rise to a constricting ring at the neck of the sac.

The Anatomy of the Retroperitoneal Fossæ.—The author adheres to the original and distinctive names of (1) fossa duodeno-jejunalis, (2) fossa intersigmoidea, and (3) fossa subcæcalis of Huschke and Treitz, in preference to the longer appellations of Wenzel Gruber (*Medizinische Zeitschrift Russlands*, 1859, no. 8). He has carefully examined 45 bodies of both sexes, varying in age from twelve weeks (of intra-uterine life) to sixty years. In 18 bodies the fossa duodeno-jejunalis was well developed, without hernia, in one with complete hernia; in 8 it was obliterated, yet clearly recognisable; in 18 it could not be demonstrated—of these, however, 10 were very young embryos, in whom the pouches were yet undeveloped. In 34 bodies the fossa intersigmoidea was well developed, without hernia; in 4 it was obliterated, but clearly demonstrable; in 7 it could not be demonstrated. This form is therefore the commonest; the fossa subcæcalis is much rarer. As regards adults, he finds the percentage in 250 subjects to be nearly as follows: fossa duodeno-jejunalis, 73 per cent.; fossa intersigmoidea, 84–85 per cent.; fossa subcæcalis, 30 per cent. These numbers agree very nearly with those of Treitz and Gruber. The fossa duodeno-jejunalis is practically the most important of the peritoneal pouches, as it most frequently gives rise to internal herniæ. Its site is exactly the part where the duodenum joins the jejunum; the bowel lifts itself from the vertebral column, and receives its own mesentery. It is funnel-shaped, and its blind extremity extends outwards on the left border of the duodenum, lying deep between this and the aorta. Gruber (*Archiv für Anatomie und Physiologie*, 1862, and Virchow's *Archiv*, Band xlv.) has described three cases of this fossa being situated on the right side, with a common mesentery for large and small intestine. In one of these cases there was a retroperitoneal hernia on the right side. Its usual size is about that of the top joint of a finger,

but it may reach dimensions which will easily admit a coil of intestine 1 or 1½ foot long. If traction be made on the first part of the jejunum, in a direction forwards, and to the right, the two peritoneal folds round the opening of this fossa will be seen like the plicæ Douglassii. [Two illustrative cases are appended.] This fossa may sometimes be divided into two, as in a male aged forty, dissected by Waldeyer; and sometimes there is another little pouch (*Vortasche*) in front of it. [A case is appended, in a male aged forty-five, in which this anterior pouch would conveniently hold four or five inches of intestine.] The duodeno-jejunal fossa, as noted above, is often quite obliterated.

The fossa intersigmoidea has had several discoverers (Hensing, Treitz, and W. Roser), and is situated in the mesentery of the sigmoid flexure. Its opening is in the lower fold of the mesentery, and the fossa lies between the two folds of mesentery, very close to the sigmoid flexure. If the latter be raised, so that its mesentery is put on the stretch, the opening of the fossa is easily seen, and in the author's experience, this is the most constantly present of all the peritoneal pouches. Treitz says that the inferior situation of the opening prevents herniæ from occurring at this spot. The opening of the fossa is generally slit-like, with a sort of valve formed by the upper border projecting—the fossa usually admits the tip of the index-finger. Its size varies. [Two cases are given, in one of which three fingers could be contained—in the other the opening was 2 by 1 inches, nearly.] It is very common to find a canal ($\frac{3}{8}$ to 1 inch deep) instead of a fossa—or there may be two such canals or pouches. [Illustrative cases are given.] The edges of the fossa are often very hard and thickened.

The peritoneal pouch of the cæcum, or so-called fossa subcæcalis (Treitz) is very rare. Yet two or three such pouches are described by Huschke, Treitz, Luschka, Langer, Schott, and Gruber. The author, from investigations made on the bodies of about 40 adults and 25 new-born children and embryos, concludes that there are at least four such pouches belonging to the cæcum—viz., (1) a fossa ileo-cæcalis superior (Luschka); (2) fossa ileo-cæcalis inferior (Huschke) = recessus ileo-cæcalis (of Luschka); (3) the fossa cæcalis (Huschke); and (4) the fossa subcæcalis (Treitz). A description of these is appended, with illustrative cases; together with the author's views as to the development of these pouches in the embryo. W. BATHURST WOODMAN, M.D.

RECENT PAPERS.

On the Relations of Tuberculosis to other Diseases. By Dr. Bizzozero. (*Giornale della Reale Accademia di Medicina di Torino*, May 20.)

DISEASES OF CHILDREN.

RAFINESQUE ON INFANTILE SYPHILIS.—M. Rafinesque (*Archives de Tocologie*, January, 1874) agrees with M. Trousseau that there is nothing which presents more difficulties in arriving at a correct conclusion than congenital syphilis. Although the influence of syphilis in causing abortion is admitted by all authors, yet the degrees of its frequency, the conditions favourable and unfavourable, and the period at which it most frequently occurs, have not been definitely determined. M. Rafinesque gives some

useful statistics bearing on these points from observations obtained at the Lourcine.

There were 44 accouchements of women tainted with syphilis, of whom 29 had children at full time, and 15 abortions. These figures differ considerably from Whitehead's—117 miscarriages out of 256 births; and from those of M. Fournier—141 premature to 249 deliveries at full time.

The period at which the abortions occurred were half at eight months, the rest at the fifth and sixth month; one only at the fourth month. Two others might not improperly be added to the list of miscarriages, although the fœtuses were delivered at full time, as they were in a state of decomposition, showing that death had taken place some time previously to their expulsion.

It used to be considered that the majority of these abortions occurred at the fourth month; but Lance-reaux placed them at the sixth or seventh month; the author, from his own observations, places them still nearer to term.

From the few cases in which he proved the father to be syphilitic as well as the mother, the effect on the period at which the abortion happened bore out the investigation of Bärenspring, that it was earlier. As to influence which the date of the contagion, during pregnancy, had on the child, he was unable, from the exceeding difficulties surrounding the inquiry, to obtain a sufficient number of cases to form a fair comparison. But the few which he did procure went to confirm the opinion of Trousseau and Diday, that syphilis contracted during gestation is not transmissible to the fœtus.

Where the father was healthy but the mother diseased, the delivery took place at the eighth month or at full time. In every case the child was affected; still the author believes that an infected mother may bear a healthy child, and that syphilis differs in no respect in this particular from other hereditary disorders.

May a syphilitic father beget an infected child, the mother remaining quite free? M. Rafinesque relates one case, but it is far from conclusive, as the infant did not exhibit any signs until it was six months old, and had in the meantime been suckled by two infected women for a month. The date at which hereditary syphilis generally first shows itself, from the observations made, coincided with M. Trousseau's. The period is within fourteen and forty days; it rarely appears before that time, and still more rarely after the eighth month. The most frequent form of the disease was *plaques muqueuses*; next in order of frequency came papular and papulo-squamous syphilides. *Post mortem* examination did not reveal the immediate causes of death; perhaps the microscope will give better results. The placenta was examined in every case, and showed no syphilitic lesions.

An antisyphilitic treatment of the mother did not seem to exert any beneficial influence on the child that should be born. In seventeen cases of abortion, the mother had been under treatment not less than fourteen times; ten for a considerable period, and three no treatment whatever. In the last cases the children were born at the fifth and seventh month, and at term. On the other hand, of twenty-seven women who were delivered at full time, nine only had undergone any specific treatment for not more than three weeks, six had been treated from ten days to three weeks before confinement, eight had done nothing, and the last four seemed to be in a similar condition. He agrees with M. Fournier and others,

that syphilis seems to act not injuriously on parturition, but on the contrary, obstinate *plaques muqueuses* of the vulva have been seen not unfrequently to rapidly disappear during child-bed.

W. C. GRIGG, M.D.

WERNICH ON COCCYGEAL TUMOUR IN A CHILD. At the meeting of the Gynæcological Society of Berlin, on November 25, Dr. Wernich exhibited a child two years old with a large coccygeal tumour. Its greatest circumference was $27\frac{1}{2}$ inches; it was hard at the base, but fluctuating at the apex. The resistance felt in the abdomen seemed to show that it probably extended into the pelvis. The child could walk tolerably rapidly in a bent position. Fœtal remains could not be felt within on the tumour; it seemed rather to consist of cysts with isolated patches of lipoma.

RECENT PAPERS.

Tetanus in New-born Children, and Hydrate of Chloral. By Dr. L. Giuntoli. (*L'Imparziale*, no. 5, 1874.)

SURGERY.

COUSIN ON RESECTION OF THE SHAFTS OF THE LONG BONES AFTER GUNSHOT INJURY. — Dr. Cousin (*Union Médicale*, January 17 and 24, 1874) enters into a minute historical criticism of the opinions held upon this subject, and quotes, in the first place, from the often cited Circular no. 6, that resection of the long bones in their continuity in the treatment of gunshot fractures, is an operation to be condemned. These fractures are generally comminuted, and from the mere extraction of loose fragments to the total formal resection of the injured part, the difference is only one of degree. Percy recommended the irregular broken ends of the bone to be sawn square; and Baudens, during the Algerian wars, adopted this plan for the upper limbs. He speaks very hopelessly of the effort to save the limb in fracture of the thigh. Larrey most strongly objected to the resection of the ends of the fractured bone, and certainly the experience of recent wars has amply justified his objection. German, French, and Italian surgeons, have all found their efforts in this direction failures. Such operations are generally useless, if immediate; rarely indicated, and rarely successful when intermediate; at later periods, however, when the bone has become necrosed, they are often demanded, and when performed, are generally followed by satisfactory results. The conditions under which the operation is then undertaken resemble those in an ordinary case of necrosis.

Resection, therefore, of the long bones, in their continuity, after gunshot-wounds may, in general, be considered a bad operation. It is rare in time of war that conditions favourable for such an operation exist; amputation is better than resection, in that it requires a shorter time for recovery, and patients so treated reach much more easily, and much earlier, a condition fit for transport. The majority of wounds will heal when the patients are young, healthy, well treated, and placed in good hygienic conditions. Young soldiers, therefore, are better able, when the wounded are not too much crowded, to withstand the effects of severe operations. Resections in the continuity afford better results in the upper than in the lower limb; they are practicable, perhaps, in the leg,

but should be rejected entirely in the thigh. If the bony fragments be numerous and large, and the fractured bone-ends difficult to keep in position, if the periosteum be largely separated, or if there be fissures, resection may be practised when there is nothing in the condition of the soft parts to contraindicate it. It must not be forgotten that a limb thus resected requires more attention than one treated conservatively. The wound is increased in extent, the retention of the limb in proper position becomes exceedingly difficult. Even if osseous suture be practised; and the operation be done subperiosteally, there is sure to be much shortening, and perhaps a false joint. If the operation be indicated, it is clear that it cannot be done with advantage in the primary stage; the limb must either be treated conservatively or be amputated. In the secondary period, when the inflammatory symptoms have subsided and the suppuration is well established, the operation becomes practicable, the periosteum is vascular and thickened, easily separable, and its powers of regeneration much increased; but an almost insurmountable objection exists in the impossibility of determining the limits of the osteomyelitic inflammation in the bone; it often extends higher than the changes in the periosteum would indicate. Even could this be determined beforehand, sawing through the bone is very likely of itself to start the inflammation afresh. At a later period, some months after the injury, when fistulous tracks exist, leading to sequestra, an operation for their removal affords, of course, excellent results.

WILLIAM MAC CORMAC.

VERNEUIL ON THE PALLIATIVE TREATMENT OF CANCER OF THE RECTUM BY LINEAR RECTOTOMY. M. Verneuil, in a lecture given at the La Pitié Hospital, and reported in the *Gazette Hebdomadaire*, March 27, 1874, has demonstrated the advantages which may be derived from linear rectotomy in cancer of the rectum. Besides the three cases he published in a memoir, read at the Société de Chirurgie in 1872, he has since performed this operation in two other cases, with the effect of removing the pain and giving great relief. Up to that time rectotomy had been performed with the linear *écraseur* in the posterior median line, and as high as possible. In the fourth case, which formed the subject of M. Verneuil's lecture, he resected a small band about two centimètres wide, along the posterior wall of the rectum. To facilitate this operation, M. Verneuil cut a triangular piece of skin, of which the base corresponded to the point of the coccyx and the apex to the posterior commissure of the anus; this strip largely opens the postrectal cellular cavity, and allows the operator perfect freedom of working on the exposed rectum.

SEBILLE ON GOUGING AND SUBPERIOSTEAL RESECTION OF BONE.—After having passed in review the different facts cited in support of both methods, Dr. Seville more particularly gives his attention to two cases in which resection has been successfully performed by M. Richet, and arrives at the following conclusions, published in the *Thèses de Paris*, 1874. The plan of gouging benefits, in our opinion, by the remarks and criticisms which it has been in our power to make on subperiosteal resection. In surgery it is necessary to be able to see what one is doing, and to have free scope for action. In this respect the surgeon is at his ease, since the principle of the method is to eliminate all the un-

sound portions of the bone. We do not deny that large experience is necessary, so as to stay one's hand at the proper time; therefore we do not recommend this operation to a young surgeon who is not perfectly well informed on the histological elements appertaining to affections of the bones. It is a remarkable circumstance that the member operated on should not become the seat of any inflammatory reaction. During the first few days, the integumentary fragments become swollen and then cleanse themselves, while the wound in the bone becomes covered with fleshy excrescences. Sometimes the bony surfaces which have been gouged are attacked by partial necrosis, and thin laminae thus produced are rapidly detached.

Ollier had laid hold of this fact for the purpose of laying a serious indictment against gouging; but experience has proved that this incident does not hinder cure; it is only a matter of time. The gouging plan, according to Dr. Seville, possesses advantages over subperiosteal resection which may be thus enumerated.

1. Free issue is given to the liquids resulting from diffuse and infectious inflammation, ulceration, gangrene, pyæmia, &c.
2. The shape and the length of the member are retained.
3. The muscular, tendinous, ligamentous, and aponeurotic attachments are preserved intact.
4. By comprehending in the incision the fistulous passages which permeate the bone and the diseased parts, and cauterising them, a perpetual source of suppuration is dried up, and the patients are frequently restored to health.

OLLIER AND OTHERS ON RHINOPLASTY BY A NEW METHOD.—In the *Union Médicale* of April 25, 1874, is the account of a discussion at the Surgical Society of Paris on rhinoplasty, *à propos* of some cases by M. Ollier, in which he had attempted the restoration of the nose by a new proceeding. This proceeding was applied to cases in which the remains of the nose were, as M. Ollier expresses it, 'sucked into the nasal fossæ.' It consisted in dissecting a flap from the forehead, comprising both superficial parts and periosteum, and reversing it so as to present its cutaneous surface towards the nasal fossa, where it was expected afterwards to take on the characters of mucous membrane, while the bleeding surface was covered over by a flap dissected off the remains of the collapsed nose. The result was said by M. Ollier to be satisfactory, not only to himself, but to his patients, whom he regarded as still better judges of their own improvement; but some very lively discussion seems to have ensued on this point, some of the surgeons present being by no means pleased with M. Ollier's results, and not at all favourable to any operations of this kind. One of the debaters quoted the case of a patient who, from despair at the disgust produced by his mutilation, had resolved to kill himself, but was weaned from his purpose by the results of the operation. This was met by another speaker, who said that he had another patient, who had thought also of killing himself, and was more than ever confirmed in his resolution when he saw the result of the operation on the other man. This need not be taken seriously, but it seemed agreed on all hands that the effects of such plastic operations are usually only temporary, and that in a year or two the newly formed nose

will most likely wither away. The operation by superimposed flaps seems to have been practised by other surgeons as well as by M. Ollier, and to be regarded as a very efficient proceeding.

WINTER ON DISLOCATION OF THE RADIUS IN CHILDREN.—Dr. Moritz Winter writes a short paper (*Medizinisch-Chirurg. Centralblatt*, May 8, 1874) to call attention to the frequency of the dislocation of the upper end of the radius, whether in front of or behind the external condyle, in youth. The symptoms and appearances of these dislocations when complete are described as in the text-books; but the more original part of Dr. Winter's paper is his statement that he has met with several cases in which the symptoms were so obscure, and the parts so masked by swelling, that no positive diagnosis could be formed, yet in which, suspecting the nature of the injury from the cause (a violent pull on the supinated hand), from the fixing of the arm in the bent and usually also supinated position, and from the way in which the child kept it pressed against the body, so as to avoid the pain of motion, he made attempts at reduction, and the immediate restoration of the head of the bone to its place, with a distinct crack, followed by instantaneous relief of all the symptoms, showed that there was at any rate subluxation if not complete dislocation. He says that experienced mothers and nurses often treat this injury successfully, having observed that pulling the child's hand restores the power of motion; and he urges the necessity, both for the sake of the patient and of the surgeon, of recognising the nature of the injury and treating it in the only proper manner.

OPPIZZI ON LIGATURE OF THE INTERNAL ILIAC ARTERY, FOR FUNGUS HEMATODES OF THE SACRO-ILIAC SYNCHONDROSIS.—Dr. Oppizzi relates (*Gazzetta Medica Italiana Lombardia*) a case in which the internal iliac artery was tied by Professor Porta at Pavia, on July 9, 1873, in the person of a woman forty-five years old, who had a pulsating tumour in the right buttock which had existed for several months, without any known cause. There was no pain in moving the limb, nor any sciatic pain. The pulsation was accompanied by a bruit which is not described further than as a 'souffle very perceptible to the ear.' Compression on the aorta or common iliac stopped the pulsation and bruit at once. There were no tumours elsewhere. No hesitation was experienced in the diagnosis of aneurism. After an ineffectual trial of injections the artery was tied—for the first time at Pavia. Little difficulty was experienced in the operation, which lasted about half-an-hour, and was done without chloroform, the patient submitting very quietly. However, acute peritonitis soon set in, and she died in forty hours.

The tumour was then found to be cancerous and not aneurismal, springing from the innominate bone around the sciatic foramen, and implicating several of the large branches of the gluteal artery.

[This error in diagnosis is one very difficult to avoid. Guthrie's, Moore's, and other cases will at once occur to the remembrance of the surgical reader. The possibility, nay the probability, of such an error furnishes an additional motive for avoiding so dangerous an operation as the ligature of the internal iliac as long as possible.—*Rep.*]

T. HOLMES.

RECENT PAPERS.

The Treatment of Varicose and Lymphatic Ulcers with Carbolic Acid. By Dr. Dawrsky. (*Betz's Memorabilien*, xix. Jahrgang, Heft 2.)
Total Removal of the Tongue by the Galvano-Caustic Apparatus. By Dr. F. Valerani. (*Gazzetta delle Cliniche*, May 12.)

SYPHILOGRAPHY.

WOODMAN ON THE RELATIVE FREQUENCY AND VALUE OF CERTAIN SYMPTOMS OF CONGENITAL SYPHILIS.—Dr. Bathurst Woodman (*Transactions of St. Andrew's Medical Graduates' Association*), gives statistics of the various diseased conditions observed in 200 children of syphilitic parents. In all the cases one parent was ascertained to have suffered severely from the disease, and in all but four or five there was evidence that *both* parents had so suffered. In addition to these 200 cases, Dr. Woodman noted 300 more, in which the symptoms could fairly be attributed to a specific taint; making in all 500 cases of congenital syphilis out of a grand total of about 10,000 patients. The 200 cases in which the history of syphilis in the parents was clear and unmistakable were, however, alone used in preparing the statistics. These showed the symptoms observed in the following proportions: 'Thrush, 66·5 per cent.; snuffles, 54; gummata, 42; specific skin-diseases, 35·5; diseases of anus and genitals, 29·5; glossitis and gingivitis, 22·5; mucous tubercles, 19·5; adenitis, 16; nodes on long bones, 5; enlargements &c. in internal organs, 3; iritis and corneitis 2·5; notched teeth, 2·5.'

Under the term 'thrush' Dr. Woodman includes all forms of stomatitis as well as true parasitic 'muguet,' and enumerates certain features which, he thinks, may be characteristic of a syphilitic variety. With regard to cutaneous gummata and muscular nodes, which he regards as amongst the most certain marks of congenital syphilis, he points out that their occurrence appears to have been overlooked by Diday and other authorities, and that in practice they are constantly mistaken for boils. They may be distinguished from the latter, however, by being less acuminate, flatter, and more rounded on the surface, and often disappear without any destruction of skin. In early stages, the skin is often not reddened or discoloured, and not inflamed. The induration is always more or less annular, and the centre soft and fluctuating; the contents are like thin dirty gum-water, not purulent, and the shreds are fine, without any distinct 'core.' The small number of cases of notched teeth is accounted for by the fact that less than 10 per cent. of the cases had cut the test teeth, the permanent incisors of the upper jaw; and the low percentage of affections of the eye is attributed to the contiguity of the Ophthalmic Hospital at Moorfields, whither such cases would naturally be taken. Mucous tubercles were observed to occur frequently in the mouth—soft palate and tongue—and on the anus in some of the cleanest and best-tended children, and were not therefore due to dirt and neglect, as suggested by Dr. Thomas Ballard. The result affords fresh and independent testimony of the connection between certain groups of symptoms in children and the previous existence of syphilis in the parents, already sufficiently established by Diday, Lancereaux, and others, but which has lately been disputed by Dr. Ballard. These symptoms are pre-

sent only in a certain number of children, and inquiry into their history gives clear and unmistakable evidence of syphilis in the fathers and mothers, generally in both. Now, since the rest of the cases, to the number of many thousands, have been equally exposed to dirt, to the exanthemata, and to other causes which might be supposed to explain the attack, why have they escaped? The coincidence is at least a curious one; and upon this and the success of specific treatment Dr. Woodman is content to rest the case of hereditary syphilis.

[In the list of specific eruptions, the author omits all mention of erythema and tubercular eruptions on the buttocks and maculæ on the face, which are amongst the earliest signs of congenital syphilis, analogous to the roseola and secondary tubercular eruption of the acquired disease.—*Rep.*]

W. B. CHEADLE, M.D.

MATERIA MEDICA AND THERAPEUTICS.

THERMES ON ARTICULAR RHEUMATISM TREATED BY PROPYLAMINE AND THE CHLORHYDRATE OF TRIMETHYLAMINE.—Dr. Thermes has published a paper in the *Revue Médicale* of March, 1874, in which he records four cases which have occurred in his own practice where the administration of trimethylamine has yielded excellent results. The first case was that of a man twenty-seven years of age, who was attacked by subacute articular rheumatism on February 13, 1873. His pulse was at 80, and his temperature at 95.5° Fahr.; 75 centigrammes (about 11½ grains) of trimethylamine were administered, and then 1 gramme (15 grains) of propylamine. The next day the improvement was already very perceptible. The pulse and the temperature had fallen. On February 18 the cure was complete, after five days' treatment. In the second case the patient was a man forty years old, who was suffering from his third attack of acute articular rheumatism, which first showed itself on February 15, 1873, the temperature being at 100.4° Fahr., and the pulse from 96 to 100. In the first instance a gramme, then a gramme and a quarter, of propylamine were administered. A marked improvement was noticeable after the 19th; on the 20th the temperature had fallen to 99.7° Fahr. and the pulse to 88. On the 22nd the cure was complete, after eight days' treatment.

The third case was one of multi-articular acute rheumatism. The second attack declared itself on February 18, 1874. The temperature was at 99.5°; the pulse at 84. One gramme of propylamine was given, and the patient was cured by the 25th, and was able to resume work on March 1. The fourth case was also one of general acute articular rheumatism. It was the fifth attack the patient had had. All the previous ones had run an average course of from five to six weeks. The fifth attack declared itself on March 1, 1874. Chlorhydrate of trimethylamine, in doses of 1½ gramme, were administered. Pericarditis supervened on the 4th, with vomitings and diarrhœa, but the treatment was continued. The cure was perfected by the 11th, after ten days' illness and treatment.

GUENEL ON MERCURIAL FRICTIONS IN SERIOUS SYPHILITIC COMPLICATIONS.—In the *Thèses de*

Paris, 1874, no. 145, Dr. Augustin Guenel demonstrates from numerous instances the heroic action of mercurial frictions in the treatment of syphilitic complications; more especially when they affect the cerebro-spinal axis. He shows that this method, which has the advantage of not distressing the digestive tube, acts as well against secondary accidents as against tertiary, and that it often succeeds where internal medication has failed.

SIMBAT ON THE USE OF CHLORIDE OF ZINC IN THE TREATMENT OF FISTULA.—In a paper published in the *Thèses de Paris*, 1874, no. 73, and based on cases for the most part observed in M. Gaujot's service at the Val-de-Grace, Dr. Simbat shows the good effects which may be obtained by the use of Canquoin's paste in the treatment of fistula, and particularly in the use of anal and even urinary fistula. The chloride of zinc is employed with advantage in the treatment of fistula, in consequence of the granulating power it imparts to their walls; by reason of the facility with which it is applied; also in consequence of the absence of the accidents which might accompany wounds from cutting instruments; and, lastly, because it is more likely to prevent recurrence of the evil than other methods of operation.

ORÉ ON INTRAVENOUS INJECTIONS OF CHLORAL. M. Oré, in a communication to the Paris Academy of Sciences, upon intravenous injections of chloral, arrives at the following conclusions. To obtain complete anæsthesia, the solution should be of one-third strength. Injection should be effected always by the process of direct puncture, without denudation of the vein. The surgeon should perform the operation slowly, so that he may sound the predispositions of the patient. When the patient indicates that a sleepy feeling is attained, anæsthesia is also imminent. From the time that sleep is produced, injection should be discontinued; in a few minutes such a state of anæsthesia will evince itself as chloroform could never produce. The operation concluded, immobility may be removed by application of the electric current. From the commencement of the operation the surgeon should have in readiness an electrical apparatus. Anæsthesia produced by intravenous injection of chloral is applicable to all surgical operations, especially to those of long duration, resections, ovariectomies, etc.

CROLAS ON THE OBTAINING OF CHEMICALLY PURE IRON FOR MEDICINAL PURPOSES.—It is well known that commercial iron contains sulphur, phosphorus, and arsenic; that hydrochloric acid contains arsenic and sulphuric acid; carbonate of soda and water both contain sulphates. These substances, generally employed in the reduction of iron, it is difficult to obtain chemically pure. To use them otherwise results in the production of sulphuretted, phosphoretted, or arseniuretted hydrogen, forming during reduction of the iron, sulphides, etc., as impurities. It therefore becomes necessary to purify the hydrogen, and to deprive the oxide and the water employed of the sulphates they contain. In order to arrive at the first requisite, M. Crolas employs Dumas and Boussingault's process, which applied with care gives perfectly pure hydrogen. The protochloride of iron may be deprived of sulphates by chloride of barium, crystallising to separate the chloride of barium there may be in excess, dissolving in distilled water, and precipitating by ammonia

(which M. Crolas finds to be free from sulphates). By this means washing the oxide is avoided, for it suffices, to remove the hydrochlorate of ammonia formed and retained by the precipitate, to raise it to a nearly red heat. To avoid the formation of oxide, there is arranged between the hydrogen wash-bottles and the reduction retorts an iron tube, which being heated and traversed by the hydrogen thoroughly dries the gas. Iron prepared by this process is chemically pure, and never gives rise to formation of sulphuretted hydrogen while in the stomach.

PAGET HIGGS, D.Sc.

RECENT PAPERS.

On the Use of Nitrate of Silver in Medicine. By G. Koebel. (*Betz's Memorabilien*, xix. Jahrgang, Hefte 1 and 2.)

OBSTETRICS AND GYNÆCOLOGY.

MARTINEAU ON THE USE OF CHLORAL IN PREMATURE CONFINEMENTS.—At the sitting of the Therapeutical Society of Paris, held on April 8 (*Bulletin Général de Thérapeutique*, April 30), M. Martineau, after having reminded the meeting of the interesting communication made to it by M. Burdon on the excellent effects obtained from the employment of chloral during labour-pains and delivery, communicated the following two cases. Last year at the Hôtel Dieu, a patient in the seventh month of pregnancy was admitted with an attack of intermittent fever. Under the influence either of the sulphate of quinine or of the fever, the colic pains, the usual precursors of delivery, came on. The use of Sydenham's laudanum as an injection had no effect. M. Martineau then prescribed some injections of chloral, and had the satisfaction of seeing the pains and the uterine contractions cease. The pregnancy continued its normal course. (M. Martineau has lately seen an analogous fact, in which the action of chloral was most strongly manifested, in the instance of a young woman nineteen years old, half-way through the fifth month of her pregnancy.) On March 15, having been exposed to the influence of cold, this lady had a violent attack of shivering; and on the 16th M. Martineau ascertained the existence of pleuropneumonia on the right side, with fresh fever and intense oppression. Twenty cupping-glasses were applied on the side affected, so as to remove 200 grammes (about 7 ounces) of blood, and a draught containing antimony and ipecacuanha was administered. The condition remained the same on the 17th, and the same treatment (cupping and draught) was continued, with the addition of a blister on the affected side. In the course of the night, between the 17th and 18th March, at one o'clock in the morning, the patient was taken with uterine and lumbar colic, and M. Martineau being called in, ascertained that premature delivery was threatening. The pains were very violent, succeeding each other with great rapidity, and a sanguinolent discharge escaped from the vulva. He prescribed an injection composed of one gramme (15 grains) of hydrate of chloral in 125 grammes of water. At 8 A.M. the pains were less frequent, less intense; the bloody discharge persisted, and a second injection of chloral according to the same formula was given. At midday there were only some occasional lumbar

pains; the bloody discharge had almost ceased. A third injection was given, and at 6 P.M. the pains had completely ceased; there was no discharge whatsoever. A fourth injection was administered. The patient had a quiet night on the 18th. The pneumonia in the upper part of the lung was in process of resolution. There were no special symptoms about the uterus. The premature delivery was arrested, but as a matter of precaution a fifth injection was administered. The pleuropneumonia was cured at the end of nine days. Premature delivery did not take place, and after some days the patient felt the movements of the child.

M. Mialhe saw in M. Martineau's facts the confirmation of the hypothesis which declares that chloral has no other action than belongs to chloroform. M. Gubler did not agree with this. Chloral, he said, like chloroform, quiets pain: they are both calmants, but their action differs. Besides, the blood in presence of the chloral could only induce the production of 25 to 30 centigrammes of chloroform in the hour, and this would not explain the very strong action of the chloral.

M. Limousin was inclined to ask himself if the alkalinity of faecal matters did not induce the production of chloroform when chloral is administered as an injection.

M. Gubler answered to this that he had ascertained that faecal matters were not uniformly alkaline—sometimes they were acid, sometimes neutral.

GOSCHLER ON PELVIC CELLULITIS.—Of all authors who have written on this affection, Dr. Goschler (*Allgemeine Wiener Mediz. Zeitung*, Feb. 3, 1874, and following numbers) gives the preference to the views of Kiwisch, who considered pelvic cellulitis a metastatic inflammation of the cellular tissue, occurring either in the lower pelvic space in the neighbourhood of the uterus, or in the aponeurotic expansion of the internal iliacus muscle, or in the sheath of the psoas. Similar deposits are seen also in the region of the anus, the labia, and the anterior abdominal wall.

Kiwisch regarded abscesses in either the anterior or the posterior pouch of Douglas as exudation-cysts, the results of a previous peritonitis. Respecting its etiology, amongst the many complications such as abortion, injections into the uterus passing into the peritoneal sac, &c. Dr. Goschler believes it from his own experience to be generally the result of a difficult labour, where there has been some disproportion between the pelvis and the child's head, causing delay in the second stage. Two or three days after delivery, through peeling off of the vaginal mucous membrane, ulcerations and abscesses arise. By many gynaecologists these are attributed to endometritis. Grissol considered that they arose through weaning of the child; and West regards his theory as highly probable.

Is there a milk-metastasis? There is indeed a sympathetic connection between the uterus and breasts; but between the former and the connective tissue, one has never yet been proved. In Dr. Goschler's estimation, pelvic cellulitis is solely the result of mechanical pressure. Inflammation of the cellular tissue is of three kinds:—*a.* an albuminous or slightly fibrinous exudation, which is rapidly reabsorbed, leaving no traces of any kind; *b.* a fibrinous exudation which does not resolve, but remains in the form of hard nodular masses; *c.* the last, and by far

the most important, goes on to suppuration, which may be either diffused or circumscribed, leading to thrombosis of the pelvic veins, and, when the iliac veins are affected, to phlegmasia alba dolens.

The diffused abscesses may either extend to the periosteum, separating it from the bones and producing caries and superficial necrosis of the pelvic bones, or may give rise to suppuration of the inter-articular cartilages of the symphysis pubis, and of the lumbo-sacral and the sacro-iliac articulations.

In pelvic cellulitis, the functional disturbances relate principally to the uterus, the bladder, and the rectum, rarely to the intestinal tract. There is scarcely ever any sickness or diarrhoea. The fever is not so intense as in pelvic peritonitis, and there is a remission in three or four days. In acute pelvic peritonitis, the signs of acute peritonitis are always present; in the subacute the same, only milder in type and localised.

In parametritis there is no meteorism, and the tenderness in the hypogastric region is at first only discoverable on deep pressure. Vesical and rectal troubles do not show themselves for some days, until after a considerable amount of exudation has taken place, producing dysuria or obstinate constipation. These two latter affections are very characteristic of the disease. Should the exudation be so considerable as to press on the sciatic plexus of nerves, paraplegia, or occasionally hemiplegia, may result. The patients are incapable of moving their extremities in the slightest, turning in bed, or sitting up, until the exudation has been reabsorbed. No swellings are discoverable externally, except when the broad ligaments are affected. Displacement and fixation of the uterus are the chief diagnostic points in subacute pelvic cellulitis.

The symptom of the chronic subacute form which first attracts attention is a tumour felt through the abdominal walls in the region of the broad ligament, displacing the uterus, but not fixing it. It may occasionally happen that its movements are somewhat restricted, but it is never completely immovable, and the mass is not always to be felt *per vaginam*. If these symptoms be compared with those attending pelvic peritonitis, we find, coupled with displacement and fixation of the uterus, an expanded hardness of the floor of the pelvis, without any vaginal tumour. In purulent peritonitis there is a soft and less resisting tumour, which is, however, quite exceptional, as Bernutz, by his numerous examples, has shown.

Dysmenorrhœa, amenorrhœa, menorrhagia, vesical and rectal troubles, with a sensation of weight in the pelvis, and pains in the hip, down the thighs and buttocks, are the ailments which bring the patients to the physicians for relief in both forms of the disease—pelvic peritonitis or cellulitis.

In order to treat the cases properly, Dr. Goschler maintains that an exact diagnosis must be made, and great care should be taken to eliminate all those affections that are liable to be mistaken for either; such as retrouterine hæmatocele, fibrous tumours, prolapsed ovary, displacements of the uterus, fecal accumulation in the upper third of the rectum, which latter may be easily mistaken, especially when opium has been given to relieve pain.

The sequelæ of pelvic cellulitis are various—fixing of the uterus, causing abortions, versions, flexions; and, should there have been some peritoneal exudation liable to become organised, they are rendered permanent. Flexions and versions may produce,

according to their forms and gradations, amenorrhœa, dysmenorrhœa, menorrhagia, metrorrhagia, uterine catarrh, and sterility.

Retroflexions and retroversions may entail diseases of the rectum, piles, constipation, &c.; antelexions and anteversions, affections of the bladder, dysuria, strangury, cystitis, calculi, &c.

Respecting its prognosis, the disease is rarely fatal. In parametritis, absorption of the effused lymph is common; in perimetritis, rare, and the affection is more permanent.

The treatment depends on the form and condition with which one has to deal. Rest, warm injections *per vaginam* and rectum, and hot fomentation, are amongst the chief remedies. If there be indications of matter having formed, it should, if possible, be encouraged to break above Poupert's ligament; experience has shown that the opening of abscesses by the rectum and vagina may be attended with serious danger.

The author relates two typical cases bearing on this plan of treatment, and the means adopted for their diagnosis: they terminated most successfully.

DEPAUL ON THE DECAPITATION OF THE FÆTUS IN UTERO.—M. Depaul (*Archives de Tocologie*, June, 1874) publishes two cases. The first operation was performed on a multipara, who was brought into the hospital in a very exhausted state, with the shoulder of the child presenting and the left arm protruding from the vulva. Ergot had been given. Failing to turn the child, through the extreme contraction of the uterus, he at once proceeded to decapitate the fœtus, which was dead, with M. Dubois's long scissors. The operation was comparatively easy. The trunk was then extracted by means of the left arm, and the head by two fingers being placed in the mouth. The woman did well. The second was a case of twins; the first child was born three days before the waters of the second broke. The labour making no advance, the woman was brought into the hospital. M. Depaul endeavoured to turn the child, whose right arm, in a putrid state, was lying in the vagina. Not succeeding, through the tetanic spasm of the uterus, he divided the neck as in the previous case, which was not quite so readily performed, on account of the height of the fœtus in the pelvis. The trunk was brought down, but he failed to extract the head. He twice attempted to diminish the head by perforation, but on account of its soft and putrid condition it could not be fixed. After numerous trials he desisted for some hours, when, having fixed the head in the pelvis by means of assistance, he applied the ordinary forceps and delivered it. The woman died. The necropsy revealed local peritonitis of the left pelvic cavity. The inner surface of the uterus was covered with a dark offensive substance. The sinuses were open and healthy, with the exception of the circular sinus of the neck, which was filled with thick pus. The putrescent gas had escaped into the cellular tissue of the broad ligaments, and through the Fallopian tubes into the peritoneal cavity.

VEIT ON CLOSURE OF THE UTERUS BY SUTURES AFTER CÆSAREAN SECTION.—A paper on this subject by Dr. Veit, of Bonn, was read before the Berlin Obstetrical Society on October 28, 1873. He disapproves of Martin's method of stitching the uterus to the abdominal walls, as tending to produce lacer-

ation of both wounds. He considers it most desirable that the uterine wound should be closed. Not only may Lister's catgut sutures be left with impunity in the peritoneal cavity, but also, the knot becoming undone, the stitch falls into the cavity of the uterus to be afterwards discharged with the secretions. Under these circumstances, Dr. Veit describes two cases in which he operated. In the first, he closed the incision in the uterus by means of eight catgut sutures, and the abdominal wound with ten silk ones. The patient recovered without a single bad symptom. In the second instance, seven deep and two superficial catgut sutures were used, the abdominal incision being closed with the same material. After many relapses the case ultimately did very well. Dr. Martin related, at the same meeting, the case of a patient convalescing most favourably, in which he had used Veit's plan.

DUFOUR ON PREGNANCY WITH PERSISTENT HYMEN.—M. Dufour (*Archives de Tocologie*, June, 1874) was consulted by a lady for some abdominal enlargement. On feeling the tumour, the movements of a child were apparent. On proceeding to make a vaginal examination, his finger was prevented from entering the passage by a complete circular band, which ocular demonstration proved to be the hymen. In leucorrhœa the parts sometimes become much relaxed, and rendered thereby very dilatable, so that under certain circumstances the act of coitus may be completed without any rupture of the hymen. In this case the patient said that she had never suffered from the 'whites,' and this was substantiated by the condition found.

DE LA HARPE AND MÖHRLÉN ON VESICULAR RASH OF THE UTERUS.—Dr. de la Harpe and Dr. Möhrlén (*Archives de Tocologie*, June, 1874) report a case where the patient thought herself about four-and-a-half months pregnant. During the latter two-and-a-half months, anomalous symptoms presented themselves—slight uterine hæmorrhage, which was sometimes very fluid, at others clotty. At the end of the fourth month she became anasarcous, and had albuminuria, coupled with hydrothorax, bronchitis, and orthopnoea. Uterine contractions were felt on placing the cold hand on the abdomen; *per vaginam*, the cervix was found softened and swollen, about an inch long. A vesicular mole was suspected, and ergot was given; shortly afterwards a very large hydatid mole was expelled. The chest and anasarcous conditions rapidly disappeared. M. Möhrlén had observed a precisely similar case a short time previously. M. de la Harpe instituted inquiries to see whether this anasarcous condition was an usual concomitant, and whether it could be in any way regarded as pathognomonic of the affection, but failed in doing so.

CHARPENTIER ON DIFFICULT REMOVAL OF THE HEAD IN A CASE OF BREECH PRESENTATION.—Dr. Charpentier (*Archives de Tocologie*, June, 1874) relates a case occurring in a primipara, where, after having extracted the trunk and arms, he failed in delivering the head until after a lapse of nearly twenty minutes. The cord had ceased to pulsate for some minutes. The perinæum was slightly ruptured. It was not without difficulty that the child was resuscitated. Dr. Charpentier believes that life was kept in the child through the mouth being close to

the external maternal parts, and thereby being enabled to inspire air into the lungs sufficient to sustain life and allow reanimation after birth. In all similar cases, where the head is retained, he strongly advises the immediate application of the forceps.

HUBER ON PARTUS SEROTINUS AND ON ACEPHALIA.—Dr. Huber (*Ertzliches Intelligenzblatt*, March 25, 1874) relates a case where he was called to attend a well-formed, well-nourished woman, mother of six children, who had exceeded her date of reckoning by nearly four weeks. The face was presenting. No progress being made, instruments were applied, and the head delivered. The fœtus was found to be acephalic. It was not until after several hours of arduous endeavours that the body could be brought forth. The child weighed eight pounds (German). The perinæum was much torn. The woman did well. He remarks that Schröder and Hohl, as well as Halle, noticed that in cases of acephalia the shoulders and body were excessive in size, retarding delivery; also that Isidore Geoffroy St. Hilaire observed that, when women exceeded the ordinary term of gestation, the fœtus was not only above the average size and strength, but also that in cases of acephalia it was of inordinate size, and the labours were tedious and retarded.

A second case occurred in the author's practice where the foot presented, and similar difficulty was experienced in delivering the body.

Respecting the diagnosis *in utero*, Cazeaux calls attention to the remarkably convulsed and inordinate movements of the fœtus when the stump-like nodule of brain is irritated by digital examination. This of itself should excite suspicion, and lead to a correct diagnosis.

KAUFMANN ON EXPULSION OF AN UTERINE FIBROID.—At the meeting of the Berlin Gynecological Society, on December 9 (*Berliner Klinische Wochenschrift*, April 20) Herr Kaufmann reported a case of spontaneous expulsion of a large fibroid of the uterus in a woman aged forty who had borne two children. Two other cases were related by members present; in all these cases the recovery was most rapid. W. C. GRIGG, M.D.

CUTTER ON THE TREATMENT OF SORE NIPPLES. Dr. Ephraim Cutter, of Woburn, Massachusetts, suggests (*New York Medical Record*) the following treatment for sore nipples.

The problem is to have the nipple, during the intervals of suckling, protected from the pressure of the clothes and freely open to the circulation of dry air. To accomplish this disks of cork, about 2½ inches in diameter and 1½ in thickness, are selected. A central opening is made, and then enlarged by filing with a common rat-tailed file until the opening on one side is within half an inch of the edge, and that on the opposite side about one inch in diameter. The surfaces are smoothed and rounded by sand-paper. Thus there is a conical excavation within the cork which will cover the nipple, keep off the clothes, and allow ventilation. The lightness of the cork, its being a non-conductor of heat, and its facility of manipulation, entitle it to a first place for this purpose. At first sight it might appear that the cork would absorb the secretions, so as to become offensive, but Dr. Cutter has not found it so. It is easily cleansed by pouring on boiling water.

With this device remedies may be employed. He

has found an ointment of a grain of sulphate of morphia to a drachm of lard an excellent application after suckling, to be removed if not absorbed before suckling.

RECENT PAPERS.

Influence of Chloroformisation of the Pregnant Woman on the Fœtus. By Dr. Zweifel. (*Berliner Klinische Wochenschrift*, May 25.)

Clinical Remarks on Hydrocephalus. By Professor Chiara. (*Gazzetta delle Cliniche*, April 14 and 28.)

Profuse Metrorrhagia from an Uterine fibrous Polypus; Excision; Recovery. By Dr. C. Giambattista. (*Gazzetta delle Cliniche*, May 5.)

OTOLOGY.

POORTEN ON THE CONDITION OF THE EUSTACHIAN TUBE DURING LIFE.—In the *Monatsschrift für Ohrenheilkunde*, for February, 1874, W. Poorten describes an experiment which he made towards the settlement of the discussion as to whether the Eustachian tube is open or shut during life. He made an opening at the curvature of the usual silver catheter, which opening he placed opposite the mouth of the larynx, and through this silver catheter he passed one of Weber-Liel's tympanic catheters, with a perforation in the latter which he could at will apply to the opening in the silver catheter. With the perforations opposite the mouth of the larynx, the tuning-fork on the cranium gave equal sounds in both ears. On closing, by means of a bougie, the tympanic catheter up to, but not including, the opening in the silver catheter, the patient complained that when he spoke he felt as if in a barrel, but on removing the bougie the patient said this feeling passed off, and the sound seemed distributed. He found that if the tympanic catheter did not pass the isthmus of the Eustachian tube the feeling described was not present, but reappeared the moment the isthmus was passed. From this he concludes that from the ostium tympanicum to the isthmus is an open canal.

BEZOLD ON PERFORATION OF THE MASTOID PROCESS.—Dr. Bezold, in concluding a paper on perforation of the mastoid process in the *Monatsschrift für Ohrenheilkunde*, for February, 1874, considers the point hitherto selected for operation as too far back, and rendering the operator liable to wound the transverse sinus, an accident which, however, does not necessarily prove fatal. From measurements made on a hundred temporal bones he concludes, that a perforation commenced 11 millimètres behind the posterior wall of the external meatus will avoid the transverse sinus, and give the easiest entrance to the antrum mastoideum. The operation he proposes is as follows. The incision through the skin should be begun somewhat over the position where the linea temporalis cuts the attachment of the auricle, and should run in the curved attachment to the beginning of the under third of the auricle. The attachment of the auricle with the periosteum underneath it is now loosened from the underlying bone, and the perforation is made so that its upper boundary is half a centimètre under the linea temporalis. As in seven per cent. of the bones examined the isthmus between the transverse sinus and the meatus was found to be only 7 millimètres across, it is necessary, in order to avoid the sinus, to pass through this isthmus within 7 millimètres of the posterior wall of the meatus. The bone at the part where the opening

is proposed to be begun forms a moderately sharp angle with the long axis of the meatus, which makes it somewhat difficult to start the perforation; but this is compensated for by the bone being softer here than more posteriorly. By keeping along the posterior and upper wall of the meatus, the instrument will enter the antrum in from 10 to 12 millimètres. It is not advisable to go beyond this distance, as at from 18 to 20 millimètres the horizontal semicircular canal and the second bending of the Fallopiian canal are met with. The instrument which Dr. Bezold prefers is a hand-gauge from 3 to 5 millimètres broad.

In cases of asymmetry by an abnormally developed fossa sigmoidea, or marked cranial deformity, or where the mastoid process is small, and so gives a small amount of room to work upon, he would advise avoidance of the operation till we have further experience.

BING ON PERFORATION OF THE MEMBRANA TYMPANI.—Dr. Albert Bing, Assistant in the Vienna University Clinique for ear-diseases, has written an article in no. 35 of the *Allgemeine Wiener Med. Zeitung* for 1873, on perforation of the membrana tympani. He thinks that Wilde's explanation of the cause of the perforation being most frequently at the lower anterior quadrant, viz., the concussion of the air from the Eustachian tube on that point, is not sufficient, and he denies that the air comes against that part more than against any other. He considers that the doubly oblique position of the membrane, and the pressure of the mass and weight of the accumulated exudation, which, from the position of the quadrant, outwards and under, and the trifling breadth of the base of the tympanum in this region, gives it a ground pressure in addition to the other actions common to other parts, are the true causes.

The reason of the giving way in the intermediary portion between the manubrium and the cartilaginous ring has been hitherto ascribed to the elastic elements of the substantia propria being fewer here; but Bing thinks that the fact that this spot of the membrana tympani is furthest removed from its attachment, and that the opposition force of an extended membrane against a pressure force decreases with the greatness of the removal from its point of attachment, ought to be taken into consideration.

W. LAIDLAW PURVES, M.D.

EPIDEMIOLOGY.

HAVILAND ON THE COMMUNICABILITY OF TYPHOID FEVER.—Mr. Haviland, the Medical Officer of Health for the Northamptonshire district, in a report to the Sanitary Authority, relates a case in which enteric fever was in all probability communicated to a whole family. In the month of October last the wife of a tradesman in Wellingborough, Northamptonshire, contracted enteric fever of which she was ill for several weeks; and during which time she was attended by a servant, a girl fourteen years of age. In the beginning of November this girl became ill, whereupon her master sent her to her home in Stanwick, a place some miles from Wellingborough. On reaching her home, having walked about three miles, and having, besides, travelled some distance by rail, she fainted from exhaustion. For six weeks she lay sick of the fever, which attacked in turn her father, mother, brothers, and sisters.

[This is fortunately an unusual occurrence; in the majority of such instances the fever having been typhus, not enteric. At the same time it cannot be reasonably denied that enteric fever is a communicable disease (and that perhaps more frequently than is imagined) in the way Mr. Haviland has pointed out; and the present reporter has evidence which he regards as conclusive on the matter. That the diagnosis of the fever was correct is supported by the long duration of the girl's illness, which must have been at least about twelve weeks, for we are told that she passed six in bed, and another six would certainly be required for the complete recovery of strength; this is just about double the time which would be necessary in typhus fever, especially in a patient at the early, and for typhus most favourable age, of fourteen. Whether ignorance, thoughtlessness, or absolute inhumanity was the cause of all the misery of which Mr. Haviland informs us, does not appear; but we cannot help saying that some blame attaches to whoever usurps medical functions of any kind, and we think something more than blame attaches to whoever ventures to decide a matter so important as the removal of a sick person from one locality to another, without competent medical advice.—*Rep.*]

GAYTON ON SMALL-POX AND VACCINATION.—In a report to the Committee of the Homerton Small-Pox Hospital, Mr. Gayton, the Medical Superintendent, states that from February 1, 1873, to January 31, 1874, he had admitted 110 cases of small-pox, of which 20 died. Of the whole number 69 are classified as discrete, all of which recovered; 9 as semi-confluents, of which 1 died; 25 as confluent, of which 12 died; 3 as hæmorrhagic, and 4 as malignant, all of which died. Seventy-eight of the cases had been somehow vaccinated, and of these 11 died or 14.1 per cent.; 32 had not been vaccinated at all, and of these 9 died, or 28.1 per cent. As one more proof of the great value of re-vaccination, Mr. Gayton mentions that of 133 persons employed in the service of the hospital since its opening on February 1, 1871, not one had been attacked by small-pox. ALEX. COLLIE, M.D.

MISCELLANY.

HONOURS FOR MEDICAL SERVICE DURING EPIDEMICS. His Majesty the Emperor of Austria has lately conferred the honour of the Iron and Golden Crowns on a number of medical practitioners, in recognition of their services during the epidemics of cholera and small-pox in Austria and Hungary.

INTEMPERANCE AND CRIME.—From a work entitled *The Dangerous Classes of New York*, by C. L. Brace, we learn that nearly two-thirds of the crimes committed in New York spring from habits of drunkenness. Out of 49,423 criminals who were received into the prisons of that city in 1870, 30,507 were habitual drunkards, and a large part of the 19,000 others were in the habit of getting intoxicated occasionally. In the penitentiary at Albany also, there were 1,093 prisoners during the same year, of whom 893 owned to being drunkards. Amongst the street Arabs of New York, 90 per cent. were ascertained to be the children of known drunkards.

M. OLLIER, of Lyons, has been elected a corresponding member of the French Academy of Sciences.

PREVENTIVE MEDICINE.—An international sanitary conference is now sitting at Vienna, presided over by the Baron von Gager, and attended by representatives of the medical profession from all the countries of Europe. Amongst the measures of preventive medicine submitted to the united medical wisdom of the European continent are, what quarantine restrictions are in harmony with the accumulated experience and the scientific knowledge of the present day, and the institution of an international commission for the study of epidemics. It will be the duty of this commission to send special commissioners to all localities where epidemics show themselves, and to officially report upon the causes of the outbreak and its cessation.

AN UNWELCOME VISITOR.—We regret to state that small-pox, in a most virulent and fatal form, has been prevailing in Birmingham, the great central town of England, for the last seven or eight months, during which time, up to the week ending May 30, no fewer than 289 deaths have been recorded. There is great reason to fear that the disease is gradually radiating from its original centre into the counties of Northampton, Leicester, Rutland, and Bucks, and under these circumstances it is evident that the most stringent precautions will be necessary. The vaccination officers must carry out fully all the powers with which they are armed by the Compulsory Vaccination Act, and insist on all parents and guardians having the children under their care properly vaccinated. Where prejudice against vaccination exists, as is but too frequently the case, much good might be effected, and the public health in some measure protected, if ministers of religion, schoolmasters and mistresses, and district-visitors, were to make a house to house visitation in their own districts, and use argument to induce those who are not vaccinated, or their natural protectors, to resort to this valuable prophylactic against one of the most severe scourges to which mankind is amenable.

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The London Medical Record.

WEDNESDAY, JUNE 24, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

THE TREATMENT OF CONSUMPTION.*

(Gleaned from Clinical Lectures at the Hospitals of New York.)

The great controlling idea which should govern the medical adviser in the management of this class of cases is the adoption of such measures as will secure the best possible condition of nutrition.

As far as the lungs are concerned, they should be made of secondary consideration. Special symptoms and local manifestations are not to be regarded as the great questions at issue. Not everything that is done is to be done with the view of checking a diarrhoea, improving the appetite, arresting night-sweats, quieting the cough, etc.

The Question of Climate in Phthisis.—First, a proper atmosphere should be given the patient to live in. An air should be obtained, if possible, of such a nature that it can be breathed for the greater part of the twenty-four hours. Second, give the patient the benefit of sunlight. Third, avoid an atmosphere loaded with dust. Fourth, exercise without producing fatigue.

The climate should be selected, if change of climate is to be made, in which the patient can be the most comfortable for the greater part of the twenty-four hours, for that is the climate which is to prove the most beneficial. The temperature and locality are in general secondary considerations. As a rule, a low and damp location is injurious.

If the patient cannot be exposed to out-door air without feeling chilled, and is necessitated to sit by a fire when he returns, for the sake of again feeling comfortable, it is much better for him to remain in the house and make an atmosphere for himself by artificial means, and then take regularly such light gymnastic exercise as will keep the body in the best possible condition. If change of location is to be made, the patient should be sent to some place where he will have a good time. Never send a patient where he will be surrounded with depressing and unhappy influences. Never send a patient in the advanced stage of consumption away from home, unless he be so situated that he can take his home and all its comforts with him. Never send a person with consumption to the sea-shore, unless the experience of the individual have proved such an atmosphere beneficial. In general it does harm. Some favour long sea-voyages in the earliest stages. Especially avoid the habit of sending every patient to the same place. In case the patient enjoys hunting and fishing, if he can be sent to a locality where he can have his favourite sports, it will prove an additional item in his favour. The man who is fond of these sports is much more likely to get well of his

phthisis. If these external general conditions can be controlled, no great amount of anxiety, as a rule, need be manifested with regard to the cough. It is the cough generally that most attracts the attention of the patient. The great object to be held in view is to raise the health of the patient to a level above that in which phthisis progresses. The power of drugs to accomplish this is very doubtful. Alcohol is of doubtful efficacy. If used at all, it should be used with the view of assisting digestion; and the article selected should be that most agreeable to the stomach. Air free from moisture and dust, food and exercise, are the things to be relied upon in the general treatment of this disease.

There are certain effects of the disease which the physician will be called upon to counteract, and for the relief of these he may be obliged to resort to some therapeutical measures. It is to these conditions and measures that attention is now especially directed.

The Cough of Phthisis.—Phthisis occasionally occurs without cough, but these cases are almost always complicated ones. The insane may go through the entire course of phthisis without cough. For the relief of the cough of consumption, an almost endless retinue of cough-mixtures have been formulated. Most of them contain opium. The effect of the opium is simply to blunt the sensibility, and permit the material to accumulate which is to be expectorated. An additional result is, that opium is almost sure to injure the patient's digestion. If it become necessary to do anything for the relief of cough, there is nothing more serviceable than morphine. While administering it do as little as possible in the way of producing another evil, by the arrest of one already existing. What are commonly known as cough-mixtures are ignored. When remedies for relieving the cough must be used, use, by preference, those which have the most powerful quieting influence without disturbing the stomach.

Distress after Eating and Diarrhoea is a very common occurrence. There are two conditions upon which diarrhoea and distress after eating depend. They may depend upon a hyperæmic condition of the gastro-intestinal mucous membrane, consequent upon irritation produced by indigestible food, or diarrhoea may be caused by ulceration of the intestines. When diarrhoea or distress after eating occurs in the earlier stages of the disease, it is most probably due to hyperæsthetic condition of the mucous membrane, and a hyperæmic condition, of which the diarrhoea is but an effort to relieve the engorged mucous membrane. Simply arresting the discharges from the bowels is not well. If several watery discharges be produced without pain, the engorgement will be relieved; and then opium and astringents may be used with benefit if necessary. As a rule, opiates and astringents are to be resorted to only as secondary measures.

A very efficient prescription to be administered under the circumstances is:—

R. Sulphate of magnesia,
Camphorated tincture of opium . . . aa ʒj
Water Oj

A wineglassful is to be taken every two or three hours, until two or three free watery stools are produced. To prevent recurrence, the diet must be regulated. When the bowels are irritable, beef-tea is apt to purge. Milk, farinaceous food, yolks of fresh eggs beaten up with wine and sugar, may be

* *New York Medical Record*, June 1, 1874.

given. If these do not agree with the patient, raw beef scraped fine may be tried; or it may be just heated through, and then scraped fine and seasoned with pepper and salt; and in some hospitals vinegar is also allowed.

An exceedingly serviceable remedy to be regularly administered in these cases of disturbed digestion, irritable mucous membrane and diarrhoea, is lacto-phosphate of lime. The article must be fresh, and must be kept in a cool place. Unless these precautions are taken, the remedy itself will prove purgative.

Pepsin combined with muriatic acid is an excellent assistant to digestion under these circumstances; also fatty meat, thoroughly boiled pork, fresh butter; perhaps cod-liver oil.

Thoroughly boiled pork is most excellent for children who suffer from summer-complaint. The diarrhoea of phthisis may occur from simple thickening of the mucous membrane of the small intestines. When the diarrhoea depends upon ulcerations in the intestines, the regulation of the diet is an exceedingly troublesome undertaking. Resort should be had to those articles of diet which will give as little trouble as possible in the latter stages of the digestive process. If the ulceration be in the small intestines, cod-liver oil and the hypophosphites may be of great service. If the ulceration be in the large intestines, little more than temporary relief can be expected. The presence of blood in the discharges is regarded as evidence of ulceration in the intestines. The seat of the pain, tenesmus, etc., is generally sufficient to distinguish ulceration of the large intestines from ulceration of the small intestines.

The most relief to be obtained from drugs is when the diarrhoea depends upon ulceration of the small intestines. The treatment adopted for the diarrhoea which depends upon a condition of hyperæmia is not of much service in this condition.

Among drugs, subcarbonate of bismuth is regarded as one of the best remedies that can be employed. It may be given in doses as high as a drachm three times a day.

R. Bismuthi subnitratiss . . . 3j
Morphiæ sulphatis . . . gr. j
M. Divide in pulvres xij.
One every four, six, or eight hours, occasionally.

Sometimes relief will be derived from the use of mineral waters. Water from the Rock Ridge lime-spring of Virginia is the best that can be employed. The water contains lime and iron, and is astringent and tonic. Of this from two to four ounces may be taken every three to six hours. It can be taken clear or with other water.

In the latter stages of the diarrhoea of phthisis, especially when the large intestines are the seat of ulcerations, opium is the chief remedy to be relied upon. When given to relieve pain, hypodermically or by suppositories, it is much less liable to disturb the stomach. Suppositories made of gum opium alone are much more efficient than when the opium is compounded with other substances.

Salicine, in ten-grain doses, three times a day, has something of a reputation in the treatment of diarrhoea of phthisis. The remedy may be given in divided doses, and administered more frequently if desirable.

Vomiting after Meals is quite common, and when present is apt to be troublesome. A wineglass of champagne, taken during meals, will sometimes arrest it at once.

Dilute hydrocyanic acid, in doses from 3 minims, gradually increased to 7 minims, administered just before each meal, is another remedy. The condition is ordinarily one of irritability, and if the acid can be carried so as to produce quite marked sedative effects, it may be of great service.

Raw Beef scraped or cut fine and seasoned.—Let the patient take teaspoonful or half-teaspoonful doses every hour or two, or oftener, and subsist upon this alone for a few days. The effect is very beneficial in many cases. Another method of preparing it is to lay a piece of beef upon live coals, immediately turn it, and immediately remove it. This cooks the meat the least possible amount, and yet gives it a flavour which, to many patients, is much more agreeable than when perfectly raw. It is then cut in small pieces, seasoned, placed by the bedside of the patient, and every now and then a piece is taken, chewed, and swallowed. This is a most excellent means for overcoming the vomiting which is sometimes present in chronic Bright's disease.

Hæmoptysis to the patients is an alarming symptom. As a general rule, they do not die of hæmoptysis. In fact they do better, and are rather more likely to recover or have an arrest of the disease, when hæmorrhage occurs. Those cases which do recover almost invariably have a hæmorrhage before recovery takes place. The moral effect produced upon the patient when such encouraging expressions are given him is sometimes wonderful. It is in the early stages that hæmorrhage may be beneficial; but from the middle to the latter part of the disease the result may be different. If the patient have bled a little, place him in bed and keep him perfectly quiet. If he belong to that class who can take opium without producing unpleasant secondary effects, a moderate dose will diminish the moral effect which the hæmorrhage has produced, and will also diminish irritability. Salt may have some effect, and certainly it can do no harm. It may be taken in small spoonful doses, followed by water. It sometimes, without doubt, does good, for it ordinarily purges when administered in this manner, and it is a remedy of which the patient will not be afraid. In those cases where the patient occasionally spits up a teaspoonful or so of blood, do not resort to inhalations of nitrate of silver or persulphate of iron.

Ergot is employed as a hæmostatic. Hypodermic injections of ergotine may be given in doses of one grain to one grain and a half. The fluid extract may be used in doses varying from 20 minims to a drachm occasionally. If ergot given by the mouth does not produce vomiting, it is apparently of some service. One of the following pills may be given every four hours. R. Pulveris secalis exsiccati, Acidi gallici, ãâ ʒss.; Extracti gentianæ, q. s. M. Divide in pil. x. *Quinia* may be given in five-grain doses every hour until the pulse and temperature are brought down.

One of the most powerful hæmostatics in the *materia medica* is turpentine. It is an exceedingly beneficial remedy in the treatment of *all* internal hæmorrhages.

It may be administered in ten-drop doses every two hours if necessary. In the treatment of hæmoptysis, this remedy is very conveniently administered by inhalation. It is volatile at a low temperature, and a copious vapour can be driven off in a very simple manner.

Take any convenient vessel, partly fill it with hot water; float upon the surface of the water, or suspend over it, a shallow dish like a plate or saucer,

upon which has been poured a small quantity (3i) of turpentine, and let the patient inhale the vapour as it arises. In this manner a gentle evaporation of the remedy can be produced which can be inhaled without inconvenience. When administered in this manner, it is especially applicable to those cases in which small hæmorrhages occur, continuing for a number of days. The inhalation may be repeated three, four, or more times a day. Strangury is only rarely produced.

When the hæmorrhage is profuse, the most certain remedy is to withdraw a given amount of blood from the general circulation. This can be done first by means of dry cups. Cover the chest anteriorly and posteriorly, and the thighs, if necessary, with the cups. If a still more powerful means be wished, resort to ligation of the extremities. Place a ligature around an arm, making it sufficiently tight to arrest the venous circulation, but permit the arterial circulation to go on. Do not retain the ligature longer than six or eight minutes upon any one limb, and when it is removed, loosen it gradually, thus gradually permitting the blood to again enter the circulation. Two or three minutes before removing the first ligature, a second one may be applied to the opposite arm, and in this manner all the extremities may be subjected to ligation. The amount of blood that can be retained from the general circulation in this way is large. Hæmorrhages may be instantly and repeatedly controlled by resorting to this measure. In a number of cases hæmorrhage precedes the cough.

Hectic Fever and Night-sweats.—The fever is one of the principal symptoms which will engage the attention of the physician. Hectic and diarrhoea sometimes alternate. For the fever, administer quinia in doses sufficient to diminish the temperature and control the pulse. An average dose is grs. xx. a day. In occasional cases the remedy produces no marked effect. Another method is to produce ringing in the ears with quinine, and continue the remedy just short of producing that effect. The fever is very commonly controlled by these methods.

For the sweats, it should first be decided whether anything is to be done for their arrest. The sympathetic action between the skin and mucous membrane of the lungs is to be taken into consideration. A sudden arrest of the sweats may do more harm than good. They are, however, sometimes so severe that they must be checked if possible. The following are among the means which may be resorted to for that purpose.

Sponging with hot water before the patient goes to bed.

Sufficient flannel clothing to furnish a change whenever the patient awakes and finds himself in one of these sweats. Change the clothes at once, when sweating occurs, immediately preceding the change by sponging with hot water.

Arouse the patient a short time before the time for the occurrence of the sweat, and have him bathe his hands and face and take a light lunch.

A large dose of quinine before going to bed. In the experience of some, quinine hardly ever does any good in hectic or habitual sweats.

Aromatic sulphuric acid in 15 drop doses, and increased by 5 drops till 40 or 45 drops are taken at a dose. Its action is slow, but sometimes beneficial.

A pill of 5 grains of oxide of zinc and 3 grains of extract of hyoscyamus, or of 2 grains of oxide of zinc, may be given three times a day. The zinc and its

combination with hyoscyamus are regarded as excellent.

Fluid extract of ergot in drachm-doses at bedtime is very beneficial in some cases. If retained by the stomach, it is quite apt to be of service.

Ergotine may be used hypodermically; atropine in such doses as will produce some dilatation of the pupil, one-sixtieth to one one-hundredth of a grain. A single dose should be given at bedtime.

Hydrate of chloral given in a twenty-grain dose about two hours before the hour for sweating arrives has been attended with success.

Cod-Liver Oil.—Whenever the patient is losing flesh and strength use the oil. That preparation of the oil which is the most agreeable to take is to be preferred. Möller's cod-liver oil is regarded as a superior article. Give it in combination with an alkali. Lime-water answers a very good purpose as a vehicle.

Oil with the phosphates answers well; and when the stomach is sensitive, the addition of two minims of dilute hydrocyanic acid to each dose is very beneficial. Commence with drachm-doses and gradually increase to half-ounce doses three times a day, which is regarded as a sufficient quantity. Give it just before or just after meals, according to the choice of the patient.

When the oil 'rises upon the stomach,' if the patient will educate himself to catch his breath, open his mouth, permit the bubble to burst as it reaches the fauces, and then blow his breath out, he will avoid all the disagreeable taste attending the eructations. This simple piece of strategy has enabled many patients to continue the use of the oil, where, before being instructed relative to it, they had been entirely unable to take it.

Nutrition can be very much supported by inunction with cod-liver oil. When oily food is not readily assimilable, 'pancreatic emulsion' is, in many cases, very serviceable.

Oxygen is of doubtful efficacy as a permanent remedy. It may give some relief. It is not to be lost sight of, and is worthy of trial.

Swelled Feet.—This symptom is regarded by the laity as one of the latest in the disease. Very great relief can be given to the patient by supporting the weakened vessels with a flannel bandage, smoothly applied.

Fistula in Ano is a complication not very infrequently met with in cases of consumption. In case the nutrition of the patient is good, and the fistula is not extensive, an operation may be performed, but the question should always be carefully considered. The liability is, that it will not heal.

FRÄNKEL AND ORTH ON TWO CASES OF MALIGNANT PUSTULE IN ADULTS.

The singular and fatal malady known by this name amongst ourselves, to which the French give the name of Charbon, and the Germans that of Milzbrand, though happily rare in England, does occur occasionally amongst cowkeepers, butchers, and others who have to do with cattle or horses; and on this account the careful description of two such cases given by Dr. B. Fränkel, and Dr. J. Orth, in the *Berliner Klinische Wochenschrift* for June 1 and 8, 1874, deserves to be transferred, with slight abridgement to our columns.

Both patients were admitted into the Augusta

Hospital at Berlin, the second being a sick-warder, and *post mortem* room assistant in that institution. The first patient, Robert Jaen, was employed in some railway-works, was forty-two years of age, strongly built, and had previously enjoyed good health. He was admitted an in-patient on January 31 last, for an inflammatory swelling of the neck. Dr. Fränkel saw him next day. He had a scab, rather smaller than a sixpence, on the left side, just under the chin, surrounded with much redness and swelling. The scab itself had nothing suspicious about it, resembling from first to last a pustule of acne which had been scratched. He said he had had a 'pimple' there for a few days, and he scratched it because it itched, and the redness and swelling then set in. The latter symptoms extended from the neighbourhood of the scab over the whole of the front of the neck, and on the right side over the clavicle, ending below in a sharply defined border over the deltoid and first intercostal space. The redness exactly resembled erysipelas: the swelling was doughy and non-fluctuating, and several hard bodies, like swollen lymphatic glands could be felt in it. These could be best made out beneath the sterno-cleido-mastoid, by feeling externally, and with a finger in the pharynx at the same time. His intellect was perfectly clear, and he only complained of pain in the inflamed parts, and when he moved his head. His temperature was 39.3°C . ($=102.7^{\circ}\text{Fahr}$). Not unnaturally, the wound was supposed to be infected, but all inquiries in this direction were nugatory. When asked if he had in any way come into contact with cattle infected with this pest (*Milzbrand*), he answered decidedly in the negative. Next day his temperature reached 103.4°Fahr ., and the redness extended still further in a downward direction on the right side. Swallowing became difficult, and the mucous membrane of the pharynx became swollen, and of a dusky red. His thirst was extreme. On February 3 his morning temperature sank to 100.4°Fahr ., and in the evening to 98.6°Fahr . Simultaneously the swelling and redness were somewhat lessened. In the evening, however, he became pulseless, and cyanotic, and died so, without losing consciousness. Shortly before death there was slightly noisy respiration, but no hoarseness.

The body was examined on February 5. The whole of the cervical connective tissue was infiltrated with reddish serum. This sanguineous infiltration, following the course of the trachea, extended into the mediastinum, along the bronchi, and over the pericardium. At the same time it followed the œsophagus, and was found in the greater and lesser omentum, and more particularly in the whole extent of the mesentery. Everywhere, along with this œdema, the lymphatic glands were enlarged, some to the size of walnuts, and so swollen with dark blood as to strongly resemble blood-clots. The spleen was considerably enlarged, and extremely soft. In the abdominal cavity was about a pint and a half of serum, free from blood, with a few turbid flakes. The lungs and the heart exhibited nothing striking. The pharynx, larynx, trachea and stomach were sent to Dr. Orth, whose report will be found further on.

Professor Virchow having diagnosed malignant pustule from these appearances, fresh inquiries were made; and it then appeared that the man had been employed in ripping up the old cushions (stuffed with hair) of railway-carriages. It appeared on further inquiries that new cushions were sometimes

stuffed with a mixture of old and new hairs—sometimes cow's hair was used. New hair was disinfected before using; but whether the patient had handled it before disinfection is not known, since whilst he was alive there was no clue to this possible and probable source of infection.

The second case is very striking as regards infection. The sick warder, Julius Körwig, aged twenty-six, previously strong and healthy, sewed up the corpse of the previous patient after the necropsy, and felt ill on February 12, seven days after the *post mortem* examination. On the 13th he presented himself as a patient, and Dr. Fränkel saw him on the 14th and 15th. Between the fingers of his left hand he had slight abrasions (*Schrunden*) of the skin, and on the 13th red streaks of inflamed lymphatics appeared on the left forearm and arm, with swelling of the lymphatic glands in the left axilla, and redness of the axillary region. The reddened lymphatics grew paler next day, but the patient complained of great weakness, and dyspnoea. On the morning of the 15th he was pulseless and cyanotic, and died in the afternoon of the same day, in full possession of his senses. His temperature chart was strikingly like that of the former patient, and was as follows: February 13, morning, 104.1°F ., evening, 105.1°F .; 14th, morning and evening, 102.3°F .; 15th, it sank to 96.8°F . He had great thirst, and during the cyanosis, the heart-sounds were slow and scarcely audible. Respiration was deep, and slow. His blood examined, at noon on the 15th, with a strong inversion lens, gave negative results as to bacteria, but it was only examined this once. Dr. Orth made the *post mortem* examination.

This case was undoubtedly one of the direct transmission of the contagion of malignant pustule. No other source of contagion, save the corpse of the first patient, could be traced. This man sewed up the body on the 5th, and took the specimens to the Pathological Institute on the 6th. Inoculation might have taken place on either day, giving either seven or six days as the period of incubation. The slight crack between the fingers of the left hand was no doubt the channel of inoculation. The usual localisation of the malignant pustule was wanting. There was no carbuncle, nor was the usual œdema observed at the place of inoculation. Had no surgeon seen the reddened lymphatics, and had the man not been under medical care, the case might have been set down as one of primary infection without any local inoculation. But the localisation was clear enough here, not by carbuncle, or œdema, but like septic poisoning, by lymphangitis. But the anatomical examination showed that the case was of true 'malignant pustule' or *Milzbrand* poisoning, and not that of ordinary septic infection. (See Korányi on *Milzbrand*; *Pitha and Billroth*, vol. i., part 3, p. 166). Dr. Fränkel notes how slight were the lesions in the heart, compared with the intensity of the cardiac symptoms which proved fatal.

The further examination of these cases was conducted by Dr. Orth, at the Pathological Institute, who reports that in the first case there was great œdema of the mucous membrane of the larynx, not only above the vocal cords, but around and below them. Indeed, the vocal cords were quite a centre for the hæmorrhagic infarction. There was no ulceration, except in the tonsils, one of which was almost destroyed by ulceration. The lymphatic glands of the throat were some of them as large as cherries, and their parenchyma changed into a soft,

dark, and blood-soddened material. The mediastinal connective tissue, like that of the neck, was oedematous and blood-stained. The lungs, though congested, were otherwise normal. The whole mucous membrane of the stomach was greatly swollen, pulpy, and reddened. In five or six large spots there was especial swelling, partly due to extravasated blood, partly to local gangrene, with a greenish-yellow tint. This appeared, not only on the surface, but on section. Professor Virchow pronounced the case to be one of malignant pustule directly he saw this stomach. The microscope confirmed this, for not only on the surface of these greenish-yellow spots, but also in the parenchyma of the gastric walls, there were found enormous quantities of the parasitic elements generally known by Davaine's name of Bacteridia. For the most part these appeared as masses of felted, but not branching, threads, which were seen, at the edges of the groups, to be composed of a number of little rod-like bodies of equal length. There were also masses, though less numerous, composed of groups of equal-sized granules (micrococci). It was now clear that the case was one of the so-called mycosis intestinalis, a special form of the pest known as *Milzbrand*, or spleen-gangrene, or malignant pustule; and the marked swelling and hæmorrhagic appearances of the mesenteric and retroperitoneal lymphatic glands, the softened spleen, sanguineous oedema of the connective tissue of the abdominal cavity, ascites, etc., described by Dr. Fränkel, perfectly agreed with the descriptions given by other observers (see E. Wagner, *Archiv der Heilkunde*, 1874).

The appearances in the second case were very similar, as regards the lymphatics, etc. There was a little fluid in the pericardium. The heart was of normal size; its walls were thick, and remarkably dry on section, shiny, and spotted, dark red spots mingling with lighter portions. The valves were not affected. The cavities were all filled with much quite fluid, dark cherry-red blood. The lungs were much congested. There was a small hæmorrhage in the lower part of the upper lobe of the right lung. Both lungs were adherent from old mischief. The appearances in the abdomen were like those in the last case, including the stomach. There was much ascites. The spleen was somewhat adherent to the diaphragm, and enlarged (6½ in. long, 4¾ in. broad, and 3¼ in. thick.) The whole organ was softened; a hæmorrhagic block was found on the upper convex surface, and small ones elsewhere; the edge was rather firmer, and follicles could be recognised. The duodenum participated in the stomach-changes, and so did all the intestine, though in less degree. The kidneys and liver had suffered less. Bacteridia in masses were found in the blood of the heart (examined at once) and on the next day in a mesenteric vein. The white corpuscles were increased. No movements were seen in these bacteridia; but that they were not coagula of any kind, was shown by their having kept perfectly well for some months with acetic acid. The blood had carried these into all the organs, but in the gangrenous-looking spots in the intestines there were no rods or fibres, but heaps of micrococci.

This is the first published case of direct communication from man to man, though Leube and Müller's cases (*Deutsches Archiv für Klin. Med.*) show that such transmission has been suspected. Dr. Orth inoculated a rabbit with the fresh blood of the second case, and from this one another, and so on

till the eighth in the series had been reached, by injecting the blood under the skin, in small quantity. They all died in from twenty-four to forty-eight hours. There were no coarse (macroscopic) *post mortem* changes in these animals, except considerable local oedema of the connective tissue and muscles at the seat of puncture, with small hæmorrhages; but the blood and the connective tissue furnished, in all the animals, great masses of bacteridia (rods and threads). In the internal organs they were present as isolated rod-like bodies. There was not the slightest impairment of the infective quality or contagion in the last experiment—which again perfectly coincides with the parasitic theory of the disease. [The authors entirely omit any mention of the measures adopted in the hope of relieving or curing this frightful malady, in either case. Were incisions made, or any other treatment employed?—*Rep.*]

W. BATHURST WOODMAN, M.D.

ON THE PRESENCE OF ABNORMAL CELLS IN THE BLOOD IN RELAPSING FEVER. BY PROFESSOR PONFICK, OF ROSTOCK.*

In the course of the long and severe epidemic of relapsing fever, which prevailed in Berlin in 1872 and 1873, I undertook a large number of examinations of the blood. The positive results which I derived therefrom are, I believe, calculated to open up a new series of points of view both in regard to the pathology of the blood itself, and in no less a degree to the process of relapse.

On the essential character of the facts in question I have already commented, in a communication which I made last year to the Surgical Congress, regarding a disorder of the marrow of bones peculiar to relapsing fever (*Berliner Klinische Wochenschrift*, 1873, p. 439). On that occasion, however, it was not so much the condition of the blood, as the surgically interesting affection of the bones, that formed the principal subject of my communication; and hence neither the signification nor the conjectured mode of origin of these anomalies of the blood could be discussed.

In the meantime, a further circumstance occurred which has led me to return to the subject. When, led by Obermeier's discovery, I proceeded to test my first observations during life, and, partly in concert with him, to complete them, I found in certain cases quite the same changes in the blood of living persons suffering from relapsing fever.

It has already for a long time been known to physiologists that in the blood of the splenic veins, besides the ordinary colourless corpuscles, larger forms are also found, which in their whole appearance agree with certain elements of the pulp, and are further characterised by an abundance of fatty granules. That these forms may, under pathological conditions, undergo an extraordinary increase, becoming unusually large and being transformed more or less completely into granular cells, I have proved in a number of diseases, starting from experimental research on animals. ('On the Sympathetic Diseases of the Marrow of Bones in Internal Diseases,' Virchow's *Archiv*, vol. lvi.)

When extremely fine insoluble pigment-granules are injected into the current of blood, these pass at once into the various tissues, especially the pulp of

* *Centralblatt für die Medicinischen Wissenschaften*, May 23, 1874.

the spleen, and finally disappear, within two days at latest, from the circulation. On the other hand, from this time there are found a number, varying with the amount of injected particles, of large and small lymphoid cells in the splenic vein, and also with the portal and hepatic veins; they are thickly filled with pigment-granules, and altogether remind one of granule-cells. (See 'Studies on the Fate of Granular Colouring Matter in the Organism,' Virchow's *Archiv*, vol. xlviii.) This presence of artificial granule-cells in the blood, which has been confirmed in all points by Hoffmann and Langerhans ('On the Retention of Cinnabar injected into the Circulation,' Virchow's *Archiv*, vol. xlviii.), appears so much the more remarkable, that it may be observed even after weeks and months have elapsed.

In reference to this point, the next thing to be done was to examine the condition of the blood of the splenic vein in all the various diseases which are attended with acute swelling of the spleen, especially those in which the introduction of very minute foreign bodies into the blood-current might, with more or less probability, be assumed; viz., the infectious diseases. In fact, it was found that, both in all the splenic swellings in infectious diseases, and also in a less degree in those met with in simple inflammatory diseases, the abnormal constituents of the splenic pulp—blood-corpuscles, pigments, and granule-cells—were found alike in the blood of the splenic vein, in proportions corresponding with the disease under observation. There were thus established a complete analogy between the morphological condition of the splenic pulp and the blood leaving it, both in infections and simple enlargement of the organ. In the absence of the connecting link of the chain of observation, we must for the present abstain from deriving from the morphological analogy one relating to pathogeny.

In correspondence with the size of the splenic tumour in relapsing fever, and the extraordinarily large number of pulp-cells, which here undergo fatty and pigmentary change, I found in this disease a remarkably large number of these also in the splenic blood. Extended research, however, showed that in high degrees of splenic enlargement their occurrence was not, as in other cases it always is, limited to the portal and hepatic veins, but that they can be found, although in smaller quantity, in other parts of the circulation. In individual cases these cells were so widely diffused through the whole body, that specimens of them could be detected in every drop of blood drawn from any part of a patient.

Such a contamination of the mass of the blood, not by fluid but by solid substances, by cellular elements foreign to it, has hitherto, so far as I know, been ascertained only in relapsing fever; and so far is practically of pathognomonic importance. For, in the intervals between the attacks, when Obermeier's filaments are constantly absent, their presence will remove any doubts as to the true nature of the disease.

Whether it be really correct to assume that all these cells have their origin in the splenic pulp, cannot at present be exactly determined. In the meantime it seems to me as if this explanation is in harmony, for the most part, with facts otherwise ascertained, and especially with the results of experiments. Under this supposition, the general diffusion will have to be explained by assuming that, in consequence of the extremely profuse development of the cells in the pulp, such as generally accompanies the highest de-

gree of splenic enlargement, they pass into the blood-current in such quantity, that the vascular regions, which in other cases remain free from them, become more and more inundated. Indeed, the splenic tumour in relapsing fever surpasses in circumference all others of acute origin; and it attains an extraordinary size in those cases especially in which a change in the blood can be detected during life.

Along with these granular masses I have also—during life—sometimes found in the blood other foreign cells, which must not be confounded with them. The best marked specimens of these are distinctly to be recognised as endothelial cells from the vessels; but, as they have always undergone more or less fatty degeneration, they may, when this process has gone on to an extreme degree, present a certain resemblance to the cells already described. But, while the endothelial cells appear flat, or at the most lentil-shaped, the others are always distinctly globular or elliptical.

This hitherto unobserved occurrence within the living blood-current of endothelial cells which have undergone fatty degeneration, reminds me of an observation which I made some time ago (*Deutsche Klinik*, 1867, nos. 25 and 26), that extensive fatty change of the endothelium of the blood-vessels occurs under the influence of certain infectious diseases. In relapsing fever, this change probably reaches so high a degree that the changed cells must be thrown off in large quantities, and be carried into the blood-current. In other diseases, the destructive process appears to be confined within too narrow limits, or to go on too slowly, to allow the separated cells to be detected in the examination of a small quantity of blood.

According to these observations, we have to recognise three sources of contamination of the blood in relapsing fever. While the occurrence of Obermeier's filaments may be well referred to importation from without, the presence of the cells of both kinds must be regarded as arising from internal or self-infection. Further researches on the blood will have to be made, to ascertain the further fate of these swimming cell-corpses; and the question will especially have to be investigated, whether they may not of themselves produce new disturbances, especially embolism and its results.

LOCKHART CLARKE ON THE MORBID ANATOMY OF PROGRESSIVE MUSCULAR ATROPHY.

In a very valuable pathological contribution (*Medico-Chirurgical Transactions*, vol. lvi. 1873) Dr. Lockhart Clarke has described the microscopical appearances observed in a case of muscular atrophy, accompanied by muscular rigidity and contraction of the joints. The parts received for examination were a slice of one of the cerebral hemispheres, the cerebellum, pons Varolii, medulla oblongata, and spinal cord. The white substance of the brain was rather thickly interspersed with corpora amylacea, from about twice the diameter of a blood-disc to fourteen times that size. In the grey substance only a few of these bodies were present, and they were confined chiefly to the deeper layers.

It is here worthy of note that in chronic disease of the brain and spinal cord the presence of bodies, of varying size and far from uniform aspect, to which the name of amyloid bodies is generally given, is by no

means uncommon. At the same time, there are forms of degeneration of the neuroglia, which give rise to appearances so closely resembling the so-called corpora amylacea that it is an extremely difficult thing to distinguish between them. Minute spots of miliary sclerosis, and of colloid, are often to be seen in the same sections with the supposed amyloid bodies. The chromic acid, or other means employed to harden the nerve-substance, so far alters its condition that the reactions of iodine or other tests for cellulose are controlled or obscured.

Dr. Clarke notes a dilated condition of the vessels, and in some parts a disintegration of these to the extent of causing their entire disappearance, with a consequent production of large empty and smooth-walled tubular spaces, which, according as they were cut transversely or obliquely, presented an appearance of round or oval vacuities. This appearance was first described by the author in a case of general paralysis of the insane, (*Journal of Mental Science*, January, 1870), and has since been noticed also by other observers. It formed the most prominent feature of the lesions described by Dr. Dickinson in the medulla oblongata from several cases of diabetes. Dr. Clarke also refers to the dilated condition of the vessels, in connection with those spaces around them which have been spoken of as 'lymphatic spaces,' or 'perivascular sheaths;' but which, the reporter has endeavoured to show, are the results of pathological, or even of merely *post mortem* changes.

The cells of the cerebral grey substances in this case were not altogether healthy. Some of them had lost their natural sharpness of outline; others contained rather more pigment than usual, or were somewhat granular at their surfaces. The pigmentation of cells was still more observable in the medulla oblongata. This change is considered by Dr. Clarke to constitute the first stage in the degeneration and subsequent disintegration of nerve-cells. The medulla oblongata was one-fifth below the average size, and the diameter of the spinal cord was reduced by at least one-fourth; so much was it reduced that when first seen by Dr. Clarke, without any explanation, he thought it was the cord of a child of fourteen years of age.

The grey matter of the cord presented a variety of lesions. Congestion of the white columns was present. Hypertrophy of the connective tissue, with proliferation of its corpuscles, and aggregation of these in masses at the angles of junction in the network, are described by the author, and illustrated in an engraving. Several patches of disintegration were observed. One of large size consisted of small remnants of partly disintegrated grey substance, irregularly connected with each other, and forming together a kind of reticular or honeycomb structure. Several large areas of disintegration and hæmorrhagic clots existed, involving large portions of the cord in destruction. In all regions of the cord, the nerve-cells had undergone degeneration and disintegration. Some were completely, others only partially, filled with dark brown pigment-granules, which in many instances enveloped and concealed their nuclei. All the remaining cells were reduced in size; many seemed to have been lost by gradual atrophy, and numbers had wholly disappeared by complete disintegration, or fallen into granules. The several stages of the process could be followed.

We have very imperfectly followed Dr. Clarke in the details of the changes he records. They are well and clearly shown in the drawings by which

the paper is accompanied. As the author remarks: 'The symptoms in this case are very clearly explained by the morbid changes that were formed in the medulla oblongata and spinal cord. Lesions were traced in the nuclei of the facial, hypoglossal, vagus, and spinal accessory nerves, and explained the symptoms of glosso-pharyngeal paralysis. The extensive loss of substance in the anterior and lateral grey substance of the cervical and dorsal regions, more especially of the *tractus intermedio-lateralis*, explained feebleness of respiratory movements, while progressive changes of similar character in the lumbar and dorsal regions of course explained the paralysis of the upper and lower extremities.'

W. B. KESTEVEN.

ANATOMY AND PHYSIOLOGY.

VULPIAN ON THE JUNCTION OF SENSORY AND MOTOR NERVES.—Physiologists are acquainted with the experiments made by M. Vulpian, along with M. Philipeaux, several years ago, with reference to the point, whether nerve-fibres anatomically alike were similar also in their physiological qualities. They joined the peripheric end of a motor nerve, the hypoglossal, with the central end of a sensory nerve, the lingual. In three or four months the union was complete, and the peripheric end of the hypoglossal nerve, which had been altered through the operation, had recovered its normal structure. On then stimulating the lingual nerve, considerable movements were produced in the corresponding part of the tongue.

M. Vulpian has, more recently, found reason to question the truth of his inference from these experiments; for he observed that one of the branches of the chorda tympani accompanies the lingual nerve in its distribution to the tongue. Thus the lingual nerve contains, throughout its course, anastomotic fibres proceeding, by the chorda tympani, from a motor nerve, the facial. He inquired what rôle was to be attributed to this anastomosis, in the physiological change undergone by the lingual nerve when the hypoglossal of the same side has been cut; and he found that the lingual nerve then acquires, in a few days, a motor action on the tongue, which it has not in the normal state.

The fact once ascertained, it became necessary to further inquire if the excitations produced in the central end of the lingual (in the experiment of uniting the lingual and hypoglossal), after the peripheric segment of the hypoglossal is regenerated, are transmitted to this segment by sensory fibres of the lingual nerve, or by anastomotic fibres of the chorda tympani. M. Vulpian has made a number of experiments on dogs with this object (*Comptes Rendus*, June 26). Six of the animals survived long enough to give satisfactory results. The procedure was as follows. The central end of the lingual nerve was joined with the peripheric end of the hypoglossal nerve, by a suture-point; the central segment of the latter nerve having been extracted, and also a long piece of the peripheric segment of the lingual. Three or four months after this, the author cut the chorda tympani on the same side, in the tympanic cavity; and ten or twelve days after the section, the central end of the lingual nerve was laid bare. It was cut across as high up as possible, and the part in connection with the hypoglossal nerve was irritated

with electrical or mechanical stimuli. Not the least contraction was observed in the corresponding part of the tongue. (The union was ascertained to have been complete, and the peripheric end of the hypoglossal was regenerated.) In the case of one dog, the junction was made on both sides, but the chorda tympani was only cut on the left side. On irritating the left lingual with interrupted currents, no movement took place in the left half of the tongue; whereas electrification, or pressure with forceps, of the right lingual gave rise to very distinct contraction in the right half of the tongue. (Here, too, it was made sure that the junctions had been complete on both sides.)

It would appear (from some further observations), that most of the fibres that are regenerated in the peripheric segment of the hypoglossal, when this nerve has been united with the lingual, have not, at least for some time, any action on the muscles of the tongue; and that if movements of the tongue be produced by electrifying this nerve-segment, the excitation is conducted to the muscles only by a small number of fibres, viz., by those which are in relation with the fibres of the anastomotic branches given to the lingual by the chorda tympani. Thus either the greater number of regenerated fibres in the hypoglossal segment do not at once take their normal relations with the muscular bundles of the tongue, or these regenerated fibres are essentially merely prolongations of fibres of the central end of the lingual nerve, and, like them, are incapable of inducing contraction. In any case (M. Vulpian concludes), the experimental facts described show clearly that the experiments of uniting, end to end, the lingual and hypoglossal nerves cannot any more be cited as proving that electrical or mechanical excitations of the sensory nerves can be freely transmitted to motor fibres. * Our former experiments were exact, but the interpretation we gave them, and which has been adopted by the majority of physiologists, was erroneous. The new ideas we have acquired as to the physiology of the chorda tympani could alone indicate the error. The results of our present experiments, however, cannot be considered as a peremptory refutation of the opinion of physiologists, which represents that sensory, motor, and sympathetic fibres have the same intrinsic physiological property, neurility, a property which in action gives rise to different functional effects, according to the central and peripheric connections of the nerve-fibres in which it appears. The question of identity of physiological property in all nerve-fibres remains a disputed one, and it is difficult to foresee in which way it will be decided.

ALEX. B. MACDOWALL.

MÜLLER ON THE DEPENDENCE OF THE ARTERIAL BLOOD-PRESSURE ON THE QUANTITY OF BLOOD.—Dr. Worm Müller (*Ludwig's Arbeiten*, vol. viii. p. 159; and an abstract in *Centralblatt für Chirurgie*, nos. 8 and 10) under Ludwig's direction, has investigated this subject, and has arrived at results fraught with importance not only for the practice of blood-letting, but also for that of transfusion. The author regards his paper merely as a preliminary one.

The experiments of Goltz made upon frogs (*Virchow's Archiv*, vol. xxix. p. 394), and those of Tappeiner (*Ludwig's Arbeiten*, vol. vii. 193), upon rabbits, have shown that a considerable quantity of blood can be withdrawn from these animals without influencing in a corresponding degree the rapidity of

the current, and the pressure in the large arteries arising from the aorta.

The author's experiments were always made upon dogs. He has established this remarkable fact, that the vascular system can accommodate very large quantities of blood without there being any marked increase of the normal arterial blood-pressure, which was always measured in the carotid. More than sixteen per cent. of the body-weight of the animal in blood could be injected into the jugular vein, without (after the termination of the injection) the blood-pressure in the beginning of the aortic system becoming markedly higher than it was in the normal dog before the commencement of the experiment; i.e. the quantity of blood that the animal originally had could be increased to three times its original amount without producing any marked increase in the arterial blood-pressure. Within certain limits this also holds if the blood-pressure have been lowered, either by section of the spinal cord or by blood-letting. As soon, during the injection, as the blood-pressure had reached the value noted before the beginning of the experiment, the addition of several quantities of blood did not raise the pressure above the normal. That the blood, in spite of the overfilling of the vascular system, remained within it, and that no important exit of blood or blood-plasma took place through the walls of the vessels, was established by the negative results found on very careful *post mortem* examination of the animals experimented on. To dispose of the idea of a simple serous exudation, the thoracic duct was opened to observe the outflow of lymph during and after the injection of the defibrinated blood. The rapidity of the lymph-current increased with the quantity of blood added, but a sinking of the blood-pressure with increased quantity of lymph was not observed. A direct proof of the overfilling of the vascular system is given in the effects of blood-lettings in an animal previously injected. From an animal into which blood had been previously transfused, quantities of blood not sufficient to endanger the life of the animal were withdrawn from the carotid. From such an animal, overfilled as it was with blood, on continuing the blood-lettings until death ensued, and even by pressing the limbs and body of the moribund animal, scarcely ever was the quantity of blood which was transfused again recovered. The results of the *post mortem* examination showed no marked overfilling of the arteries, and only in the veins of the abdomen was there an appreciable overfilling observed. The author is of opinion that after transfusion the blood is specially to be found in the capillaries, distributed more or less over the whole body. He is further of opinion that the increase in the capacity of the vascular system is accomplished by the help of the capillary nets, of the smallest veins, and smallest arteries. Very probably, throughout the whole body under normal conditions many capillaries, entirely empty, or only partly filled, exist, which become permeable for the blood-current, after considerable increase of the quantity of blood. An expansion of the capillary networks is not a necessary consequence of the overfilling. This occurs, however, under very pronounced filling of the vascular cavities with blood, and, as the author believes, at those places, and in those organs, such as the thoracic and abdominal cavities, where the overfilling is most observable.

Even with pronounced filling of the vascular system no change in the capacity of the heart for action

(*Leistungsfähigkeit*) occurred. The pulse-beats remained, with increased percentage of blood, either unchanged, both in animals with divided and in those with intact spinal cord, or they were diminished so irregularly that the latter point could only, under certain circumstances, be brought into count. The heart's working power remained undiminished. The lungs were found congested *post mortem*. An increased friction of the blood in the lungs is not alone sufficient to explain the non-increase of the blood-pressure. Neither congestion of the right heart nor of the large veins which open into it were found.

If, after transfusion, the quantity of blood in the transfused animal were diminished, the paradoxical phenomenon was exhibited, that before one half of the blood injected was recovered, the arterial blood-pressure sank much below the height which it normally had before the transfusion. By continuing the blood-letting, the animal could be brought near to death, even although the quantity of blood which it had surpassed, by several per cents. of its body weight, the original (normal) quantity of blood; in other words, animals which had received from one to three times their original quantity of blood were much more sensitive to blood-letting than in the normal condition. They yield absolutely more blood on being bled to death, which is easily explained by the strongly pronounced filling of the vascular system; but relatively they require much larger, perhaps twice as large, or may be still larger quantities of blood (than in the non-transfused condition), in order to preserve the normal blood-pressure, *i.e.*, that necessary for life. In an animal which has been bled nearly to death from both carotids, even after blood has ceased to flow from the divided arteries, blood again flows from the carotid on dividing the cervical spinal cord, and the stream is increased on raising the posterior extremities and pressing on the abdominal and thoracic walls. The author then discusses the upper and lower limits of the physiological filling of the vascular system, and then follows a short chapter on plethora and transfusion.

BIDDER ON HYPERTROPHY OF THE EAR AFTER EXCISION OF A PORTION OF THE CERVICAL SYMPATHETIC IN A RABBIT.—Alfred Bidder (*Centralblatt für Chirurgie*, no. 7, 1874), excised a piece ($1\frac{1}{2}$ centimètres in length) of the left cervical sympathetic from a half-grown rabbit. This was followed by the usual symptoms which result from the section of the cervical sympathetic. In about a month the rabbit had grown just as the other rabbits, and appeared quite sound. The left pupil was only half as large as the right, and the left eyeball projected much less from the orbital cavity than the right. The left ear was distinctly broader and longer than the right, and was more hyperæmic and warmer. A fortnight later, the difference in size was more striking. The author attributes the increase of the size of the ear to the increased continued supply of blood to the ear of the young animal, where all the nutritive processes are going on actively.

WILLIAM STIRLING, D.Sc., M.B., Leipzig.

DISEASES OF CHILDREN.

RIEFKOHLE ON THE OCCURRENCE OF MECKEL'S DIVERTICULUM IN TWO CHILDREN OF THE SAME MOTHER.—It is well known that the remains of the

omphalo-mesenteric, or vitelline duct, not unfrequently take the form of a diverticulum or pouch-like appendage at the lower end of the small intestine. The cases now recorded, the original of which will be found in the *Berliner Klinische Wochenschrift* of May 25 last (no. 21 for 1874), are of interest, from the fact of two children at least, of the same mother, presenting the same anomaly, or malformation, if it be correct to apply such a name to the persistence of a foetal structure. Dr. Riefkohl, who is a medical officer of health, says that the mother, Mrs. K—, had herself, prior to her marriage, suffered much from dyspepsia, with colic and constipation. Since her marriage in 1870, she had been tolerably healthy, though anæmic. She suckled her first child, and he thrived pretty well, till he was four months old, when he began to suffer with obstinate constipation and pains in the belly; troublesome tenesmus followed the use of purgatives, and his strength and general nutrition were seriously impaired. Dr. Riefkohl only saw him shortly before his death (in April, 1872), and diagnosed cerebral mischief, on account of his exhaustion and convulsions. The second child was born in September, 1872, and though not suckled, did very well till four months old, when similar symptoms to those of his brother set in. The bowels became irregular, and he began to scream about an hour after taking food; his features were distorted, but occasionally he obtained relief after vomiting. His strength declined from day to day, and he died in convulsions about the middle of February, 1873. On opening the abdomen, there were no signs of inflammation, but about five fingers' breadth above the cæcum there was a so-called Meckel's diverticulum, which arose from the convex border of the ileum, at right angles to that portion of the bowel, and of somewhat smaller calibre; its length was about $1\frac{1}{2}$ inch. Its rounded extremity was quite free. Mrs. K— had another son born on November 23, 1873, who appeared to do well for three months only, and then suffered from the same frightful symptoms as his brothers. Wet-nursing, cow's milk, meat-broth, Nestlé's children's food, every kind of nourishment produced, after an hour or two, griping pains, followed by vomiting. Urine and fæces were sometimes suppressed for several days. No treatment brought relief (ethereal mixtures, opiates, both internally and as suppositories, fomentations and other means were used), but the child died anæmic, with convulsions, in March, 1874. The necropsy showed nothing abnormal in the abdomen, except, as before, a diverticulum of the ileum, about four fingers' breadth from the cæcum, an inch in length; this one branched off at an acute angle from the convex border of the ileum, was somewhat narrower than the bowel, and was connected with the mesentery by a ligamentous cord. Dr. Riefkohl asks whether the fatal symptoms, in the three cases recorded, may be considered as originating in disturbances of digestion due to the presence of this diverticulum of the intestine. [The reporter, without wishing to reply too dogmatically in the negative, contents himself with remarking that similar diverticula have been found in the bodies of adults who have died of other diseases; although in other cases they have been the causes of intestinal obstruction, by forming a nidus for foreign bodies.—*Rep.*]

W. BATHURST WOODMAN, M.D.

KLEMM ON THE CURABILITY OF TRUE CROUP WITHOUT EMETICS.—Dr. Klemm narrates (*Fahr-*

buch für Kinderheilkunde, vol. vi.) a case of croup which was treated by packing in the cold wet sheet. The packing was repeated every three or four hours for the first day or two. The child recovered. Three other cases, similarly treated with the same result, are alluded to. Klemm deems the sweating which accompanies the packing to be not less beneficial than the abstraction of heat. It is important that the treatment should be begun early in the disease, before the false membrane has been abundantly formed.

STEINER ON MORBILLI BULLOSI SIVE PEMPHIGOIDEI.—Dr. Steiner narrates (*Fahrbuch für Kinderheilkunde*, vol. vii.) four cases of measles, attended with an eruption of bullæ. The patients were sisters; and the cases are the only instances of the kind which Steiner has observed out of 6,000 of measles. The bullæ appeared on the face, scalp, back, chest, hands, feet, mucous membrane of the mouth, nose, and vulva. The blebs appeared one day after, two days after, at the same time as, and half a day before, the eruption of measles. The bullæ came out in crops, and continued to appear after the measles had ceased. One child, a baby of ten months, died in consequence of pneumonia.

SAMUEL GEE, M.D.

SURGERY.

OTIS ON URETHRAL STRICTURE AND ITS TREATMENT.—Dr. Fessenden N. Otis, in a paper recently read before the New York Medical Journal Association, and published in *The New York Medical Journal*, thus speaks of certain matters connected with the urethra and its strictures.

Chronic urethral discharge, commonly called gleet, is the signal which nature hangs out to notify the intelligent surgeon that an obstruction to the normal working of the muscular apparatus of the urethra has occurred; that plastic material, laid down in the antecedent inflammatory condition, has begun to contract the normal urethral calibre, whether it be twenty or forty millimètres in circumference, and that nothing short of a complete restoration of the normal calibre of the canal will afford a permanent cure. Sandal-oil may stop it for a time; injections of innumerable variety may, any one of them, temporarily remove it; but a little venous or venereal excess will reproduce it, and thus the case goes on, until finally an attack of retention of urine calls attention to the fact that the patient has strictured urethra.

To prevent the return of stricture after operation, the stricture must first have been thoroughly sundered at some point; that those strictures which have been permanently cured (and in this number I do not include those facetiously termed cured where the patient is obliged to use, or have used, a sound every two weeks for the balance of his life, but those that never reappear after operation) have been so sundered, either by rupture through dilatation more or less rapid, by divulsion, or division. The reason why the treatment of stricture after the usual methods is imperfect—that there is always a tendency of the stricture to return—arises from the fact that, as in the case cited, the strictures were not completely sundered at any point—that they were distended, not completely divided. All urethral

strictures are composed of elastic tissue, and any operative procedure that falls short of complete division of the constricting band can never produce more than temporary results. As long as no. 8 of the English and no. 21 of the French scales are accepted as representing the normal calibre of the human male urethra, and as long as curative treatment ceases when this calibre has been reached, there will never be radical permanent cure of urethral stricture. Sooner or later, however, it is certain to be accepted that urethræ vary in size in different individuals just as widely as any other constituent portions of the human body, and that consequently stricture of the urethra is a relative term; that while no. 8 bougie English or no. 21 French will determine the presence or absence of stricture in the urethra of corresponding calibre, it fails to recognise stricture in urethræ of larger size, which has been positively demonstrated in certain cases to reach as high as thirty-six or even forty millimètres in circumference; and that complete division of stricture, of whatever calibre, having been accomplished, recontraction may be prevented, and that thus strictured urethræ can by appropriate treatment be with certainty restored to their normal dimensions without fear of subsequent recontraction. This I do not assert unadvisedly or rashly, as the records of more than fifty cases occurring in my own experience will demonstrate. Several of these cases, in which five and six strictures were present two years ago, and then thoroughly divided, have been carefully examined by me within the last month, and can be shown to-day free from the slightest evidence of recontraction. This goes far to prove that complete division of stricture, with appropriate after-treatment, will give complete immunity from recontraction. The results of operations with the dilating urethrotome, presented by me to the profession at a meeting of the New York Medical Journal Association more than a year ago, have remained permanent; that is to say, the strictures operated on, having been thoroughly divided, were afterward completely absorbed.

Dr. Otis wishes to be distinctly understood as asserting that 'stricture, as ordinarily met with, is absolutely within the reach of curative measures; that if completely divided, and this division maintained by suitable means until healing of the parts has occurred, no recontraction can ever take place; that dilatation, temporary or permanent, is never more than a palliative measure, unless carried to a point sufficient to completely rupture the stricture; that the division of stricture is not more hazardous, to say the least, than permanent dilatation—that is, by introduction of dilating instruments, which are required to remain *in situ* for hours or days—or than rapid dilatation, which requires instruments of increasing sizes to be introduced at one sitting; and, I may venture to say, scarcely more likely to produce trouble than temporary or transient dilatation, as usually practised by surgeons, which is simply to pass a sound or bougie gently through the urethra, to be immediately withdrawn; the same to be re-introduced, at intervals of two or three days or weeks, for the rest of the natural life of the unfortunate patient.'

Dr. Otis concludes with the following. '1. Stricture may be present before difficulty in urinating occurs. 2. It is always present when gleet is present—gleet, as a rule, means stricture. 3. Dilatation of strictures is, at best, but a temporary expedient; valuable

in close stricture, where urination is interfered with, and the stricture is too close for the introduction of instruments for completely dividing it; but dilatation is not only without permanent value except in such cases, but it is pernicious, inasmuch as, while it is never curative, it takes the place of curative measures. 4. Nothing short of complete division of strictures can ever result in radical cure.'

OLLIER ON RHINOPLASTY BY A DOUBLE FLAP.—M. Ollier (*Gazette Médicale de Paris*, 1874, p. 202) refers to the hideous deformities produced in the nose, as the consequence of syphilis, and states that the wretched results procured by the old methods of rhinoplasty have caused the operation to be almost abandoned. He suggests that a flap of integument taken from the deformed nose should be combined with the frontal flap. The first and most difficult step of the operation is to dissect the soft coverings of the nose, making a sort of bridge, free in the centre, and adherent at the extremities to the cheeks. A flap is then cut from the frontal region, at least six inches long, and encroaching on the hairy scalp; its pedicle corresponds exactly to the space between the eyebrows. In young subjects, M. Ollier elevates with it the periosteum, otherwise not. The flap is then reversed without torsion, so that the cutaneous surface becomes internal, and the raw surface external: it is slipped under the previously formed bridge of integument, and the two raw surfaces are fastened together to prevent retraction. When the point of the nose is absent he turns up the end of the flap, so as to replace it, and at this first operation he bestows no attention on the formation of the nares or septum. After the operation the frontal flap first swells, and then unites to the deep surface of the nasal flap; the uncovered portion cicatrises after granulation. It is well supplied with blood by the two frontal branches of the ophthalmic artery, which pass through its pedicle; the pedicle is never divided by M. Ollier, and thus the atrophy observed after other modes of operation is avoided. The further procedures consist in modelling the nose and preventing it from sinking down, and in forming the nares. Ollier has never observed bony formation from a periosteal flap. The periosteum has always remained fibrous, but it assists in giving firmness to the new nose. In a case where the point of the nose was destroyed, M. Dolbeau partially covered the raw surface of the frontal flap with integument taken from the cheek on each side. A similar process is recommended in Langenbeck's *Archiv für Klinische Chirurgie*, 1860; but Ollier claims precedence, as he communicated his ideas to Verneuil in 1858. The results of Ollier's operations, as shown by the photographs, appear satisfactory. The important feature in the operation is that the pedicle is not divided, and the flap therefore continues to be well nourished.

The osteogenetic power of the pericranium varies according to age, and in different animals; the bone being reproduced in lambs which had been trephined, whilst in the adult sheep, under similar conditions, no bony reproduction was observed.

KARPINSKI ON OSTEOPLASTIC RESECTION OF THE EXTERNAL NOSE, FOR THE REMOVAL OF NASO-PHARYNGEAL POLYPI.—Dr. Karpinski (*Berliner Klinische Wochenschrift*, no. 17, 1874) relates a case in which he removed a large naso-pharyngeal polypus, according to the method recommended by Professor Von Bruns of Tübingen. The advantages

of the method are: a direct approach to the insertion of the polypus, plenty of room for the introduction of instruments, facility for the arrest of hæmorrhage, possibility of keeping the wound open a long time to complete the radical cure by cauterising the pedicle of the polypus, easy performance of the operation, and union without deformity or loss of function. The patient in question was twenty-one years old, and suffered from severe hæmorrhages from the left side of the nose. The septum was pushed to the right side, the soft palate was much depressed, and there was difficulty in respiration and swallowing, with loss of hearing on the left side. The examination of the tumour was followed by severe hæmorrhage, and it appeared to be growing rapidly. The author modifies Von Bruns's operation merely so far that the outer angles of the incision are rounded in place of being angular. The bones are to be divided in the lines of the superficial incision with a key-hole saw. In the case reported by the author, when this division was half completed, hæmorrhage took place to such an extent from the right nostril, from the wound, and from the mouth, that the patient became collapsed, and the operation had to be deferred. The hæmorrhage was arrested by plugging the parts, and its occurrence was explained by the saw having injured the vascular polypus. Two days later, the operation was completed without further bleeding. The flap of bone and soft parts was turned over to the right side, and the entire nasal cavity exposed. The polypus was now easily twisted off, and a plug saturated with chloride of iron was introduced to prevent loss of blood. The following day this was removed, and a fresh one introduced; and finally, a week later, the external parts were united by suture. The nature of the tumour was myxo-sarcoma. The patient recovered with a nose of normal appearance; hearing returned, and the only deficiency was the absence of sensation in the left side of the nose.

WILLIAM MAC CORMAC.

MATERIA MEDICA AND THERAPEUTICS.

INCE ON CORTEX RHAMNI FRANGULÆ (BLACK ALDER BARK).—Mr. Joseph Ince writes as follows in the *Chemist and Druggist* for June 15.

Knowing from recent investigations that the Rhamnus frangula bids fair to be a valuable addition to our list of purgatives, I venture to bring before the notice of the reader what is at present known respecting its introduction, its history, and its remedial application.

The Rhamnus catharticus has long enjoyed a popular reputation: the botanical difference between that and the alder buckthorn (*Frangula*) is pointed out by Bentham, who describes the latter as growing in hedges and bushy places throughout Europe and Russian Asia, except the extreme north. In Britain it is rather more frequent than the common Rhamnus, but is still rare in Scotland. It flowers in the spring or early summer. An elaborate analysis of the two barks is given by M. Gerber (*Pharm. Journ.*, vol. ix. p. 537, Old Series) and commented on by M. Binswanger. The inference drawn from the results obtained was, that on the peculiar nature of the *bitter matter* depended the variation in medical efficacy.

That contained in *R. frangula* had more of the

nature of resinous than of extractive matter, and was very soluble in cold alcohol. The bitter matter of *R. catharticus* was crystallisable, soluble with difficulty in alcohol, but very readily in water; the taste also differed from that of *R. frangula*, being not disagreeable, but purely bitter.

The first memorandum on *Rhamnus frangula* is a note from Mr. George Mennie, of Plymouth, who recommends it as an aperient (April 7, 1843). When Mr. H. C. Baildon made some brief remarks on *Rhamnus frangula*, at Edinburgh, his suggestions, being very short, did not excite particular interest, but to that gentleman is entirely due the introduction of this bark. A Dutch friend, Mr. Baruchson, sent a small sample to Scotland for examination. Senna we well know, and children better; and it was claimed for the new aperient that it would act as an efficient purgative without the griping and nauseous qualities of that unhappy Alexandrian leaf. In Holland it was in constant use, being there prepared simply as a decoction. The formula was:—

Cort. Rhamni Frangulæ ʒiv.
Aque Oj., decoque ad Oss.

Dose: Two or three table-spoonfuls for an adult, night and morning occasionally.

I have tried it in that form with admirable success; but seeing that in private families few are sufficiently skilful to make an accurate decoction, and that in aristocratic circles none will take the trouble, I recommended a proof-spirit tincture, but was anticipated by Mr. Giles, who proposed a liquor, the production of which was further improved by Mr. Baildon. One precaution, however, must be borne in mind. There are two classes of bark, the one obtained from trees of older growth, or from the thick part of the trunk; the other, 'the bark of the younger trunks and the larger branches of the indigenous shrub, gathered in the spring.' This description is taken from the *Pharmacopœia Germanica*, and it is this latter variety that should alone be used. I have permission to quote the formula to which reference has just been made.

Liquor Rhamni Frangulæ (Black Alder).

R. Cort. Rhamni Frang. 60 ozs.
Exhaust by decoction (*more* Giles), and reduce to 320 fluid ounces. Add
Rectified spirit 80 ozs.
Product, 20 pints.

Mr. Giles's process will be found in the *Year-Book*, 1873, p. 258. Its object is 'to effect the exhaustion of a drug with the minimum volume of solvent by submitting it to successive contact with fresh portions of the menstruum.'

Proceeding in this manner, the reduction is effected by careful evaporation in the water-bath to a suitable consistence. Mr. Baildon uses the same proportions, but prepares his concentrated decoction *in vacuo*, and then adds the rectified spirit. The liquor is exactly three times the strength of the ordinary decoction.

It is hardly needful to observe that the establishment of a non-drastring purgative in our *Materia Medica* would be a boon of no secondary order. Numerous experiments, medically conducted, have been initiated, and with satisfactory result.

The dose of liquor *Rhamni frangulæ* is one dessert or table-spoonful, in a wineglass of water, night and morning as required. For children, in whose case its use is specially indicated, one tea-spoonful occasionally in a little water. When the

time comes for a new Addendum, I would venture respectfully to suggest that this bark, and the intrinsic value claimed on its behalf, should receive the attention of the Medical Council. It has made its way without adventitious aid, and already has been accepted as a safe, pleasant, and efficient purgative.

THORNE ON PERMANGANATE OF POTASS IN OXALURIA.—Dr. Thorne, of Chicago, praises, in the *Michigan University Medical Journal*, the use of permanganate of potass in oxaluria. He gives a case, and says:

'When we consider the fact that uric acid may disappear entirely from the urine, and that oxalic acid is not normally present, is it not fair to conclude that the uric acid must, in the normal condition of things, undergo decomposition in the body? We find that by adding an excess of permanganate of potass to uric acid out of the body, it is directly converted into urea and carbonic acid; and that when the oxidation is less complete, it passes into the form of urea, oxalic acid, and carbonic acid. If, therefore, we would prevent the formation of uric acid and oxalic acid, we must supply the seven equivalents of oxygen, and four of water. This is most conveniently done in the form of permanganate of potass.

R. Permanganate of potass grs. viij
Water ʒij. M.

One teaspoonful to be given three times a day.

'It should not be given except on an empty stomach; for, in contact with organic matter, it is decomposed, yielding its oxygen to any element, simple or compound, that will receive it. I have repeatedly directed, during the last two years, the permanganate to be given as above, in oxaluria, with the most happy result.'

KALISCHER ON TRANSFUSION IN THE TREATMENT OF CHOLERA.—G. Kalischer reports (*Inaugural Dissertation*, Berlin, 1872 and *Philadelphia Medical Times*), two cases of cholera, treated by transfusion of blood, in Berlin, during the last epidemic of this disease. In both cases the blood was injected into the basilic vein; the operation in one case being followed by recovery, and in the other by death. He reports also another case, treated in the same manner, in which the operation was followed by recovery. Among fourteen cases which he found reported in the journals, there was but one recovery. After the operation, however, there was usually noticed some amelioration of the condition of the patient, the pulse became stronger, and the occurrence of death seemed to have been retarded. A. Netter (*Gazette des Hôpitaux*) states that Lorain, after injection of water into the veins, always noticed an improvement in the general condition of the patients, and in one case in which life had been despaired of, recovery took place. The amount of water injected in this case was but 400 grammes, but the patient drank large quantities of the same fluid while under treatment. Netter agrees with Goltz in thinking that the injection of water into the veins is as satisfactory as that of blood or saline solutions, and concludes that the only use of transfusion is the introduction of fluid, by which the circulation is again rendered possible.

REYNOLDS ON ACETATE OF LEAD IN TOOTH-ACHE.—Dr. Henry T. Reynolds, of Baltimore, writes

to the editor of the *Medical News* that, for eighteen months, he has been using acetate of lead as a remedy for toothache. He finds it better than any of the numerous remedies proposed in the books, and in cases in which it is applicable, the relief is instantaneous. He advises the sufferer to apply from one to three grains to the cavity for a moment or two, then to spit it out. It fails in fewer cases than any other remedy that Dr. Reynolds ever tried—not more than eight per cent.

PUBLIC HEALTH.

ON THE USE OF ZINCED OR GALVANISED IRON FOR THE STORAGE AND CONVEYANCE OF DRINKING-WATER. BY W. E. BOARDMAN, M.D., OF BOSTON.*

(Concluded from page 369.)

With regard to the carbonate of zinc, which is ordinarily found in water drawn through galvanised iron pipes, Vauquelin and Deyeux, Devaux and Dejaer, Orfila and, recently, Bouchardat and Fonsagrives,† were unanimous in their opinion of its innocuity. Eminent chemists, physicians, and accepted authorities on *materia medica* and toxicology in Boston and its vicinity, confirm this view. This compound has been administered internally as a medicine for many years, though not very generally, its effects being considered so slight that it has been regarded as of little service. Gmelin, Merat and Lens and others, mention its employment in various affections, but make no reference to any injurious effects resulting from its use. Pereira remarks of its physiological effects, that its action is probably similar to that of the oxide. Oesterlen expresses the same opinion. Van Hasselt remarks, that it does not appear to be so harmless as some writers have asserted, referring to Leclaire, Chevallier, and others; but he bases this opinion upon the cases reported by Bouvier, whose deductions, as we have seen, Bouchut showed to be untenable, and upon those communicated by Landouzy and Maumené, which Bouchut, Chevallier, Tardieu, and others proved were not occasioned by the action of the carbonate. Dr. T. Stratton, surgeon, R.N., who treated two cases of poisoning with the chloride of zinc, states,‡ that the best antidotes are the carbonated alkalies, which act by converting the poison into the carbonate. Ringer § asserts, that the carbonate being but slightly soluble in the animal fluids, its action on the tissues is very weak, while in large doses it produces some nausea and vomiting; that zinc does not become fixed in the body, nor does it produce chronic affections, like lead or mercury. In fact, the almost universal testimony appears to point conclusively, also, to the innocuity of this compound.

It remains for us to consider the effects of the zinc which is contained in water in a soluble condition. It has been stated in a former part of this paper, that we are unable to say positively what salt or salts of zinc are present in such solutions. In some instances, however, it has been assumed, that the

chloride and the sulphate have been present. With equal reason, we might assume, in the case of many drinking-waters, the presence of nearly all the salts of zinc, the acetate, valerianate, iodide, etc. Admitting, then, that water which has been stored in reservoirs or drawn through pipes of galvanised iron always contains zinc in solution, in the form of one or more of its salts, the innocuity of these salts, in the quantities in which they occur, is attested by the experience and experiments of various distinguished observers to whom we have already referred. Vauquelin and Deyeux, Devaux and Dejaer, Orfila, Merat and Lens, Christison, Gaultier de Claubry, Chevallier, Tardieu, Bouchardat and Fonsagrives, Winsor, W. R. Nichols and others, while they admit the deleterious influences which may be occasioned by the soluble salts of zinc, when taken internally in sufficient quantity or for a long time, are unanimous in the recommendation of the use of zined iron for the storing and conveyance of water. This observation naturally suggests the inquiry, what quantity of the different salts, and how long a time, is required for the development of apparent injurious effects? It is impossible, of course, to decide these points absolutely. Approximative conclusions, however, are readily obtainable by reference to the statements and experience of reliable authorities.

Devaux and Dejaer,* in opposition to the conclusions arrived at by Vauquelin and Deyeux,* concluded, from a series of experiments made with Spanish prisoners, that the citrate and acetate of zinc, produced by the action of vegetable acids upon zinc culinary vessels, cannot exert any action upon the human system, in the dose in which they can be found in food and swallowed without being aware of their presence; that in a stronger dose they impart an intolerable flavour, which would constantly cause any aliment to be rejected in which they might chance to be found. Exceptions, however, were taken to the general application of the results of these experiments, by Orfila,* who is sustained by numerous eminent authorities,† on the ground that they were made upon persons of good constitution and in good health, and they were not tried as well with delicate subjects, whose nervous systems were extremely irritable. In the process of cooking, too, other ingredients take part in the energetic action upon these utensils, and in increasing the amount and variety of soluble salts of zinc contained in the food. Most of these authorities, however, assert, at the same time, or imply, that no danger is to be feared from the employment of zinc or zined material for the storage and conduction of drinking-water.

The sulphate and chloride are known to be the most active poisons of all the salts of zinc; but their harmless character, as they occur in drinking-water, may be shown by reference to experience in their administration as medicines. If this, then, is true of these salts, it will be apparent that objections to the use of galvanised iron pipes for the conduction of water, on account of the presence of the milder salts, are groundless.

The sulphate has been used for a long time in the practice of medicine. In small doses, from one-half to three or four grains, it has often been administered as a tonic and astringent. But it is observed that the system soon becomes habituated to its use, and in consequence of this fact it is always necessary to

* From the *Fifth Annual Report of the Massachusetts Board of Health*. 1874.

† See works of these writers already cited.

‡ *United States Dispensary*, 12th ed. p. 1,443. 1865.

§ *Handbook of Therapeutics*, 3rd ed. p. 217. 1872.

* *Loc. cit.*

† See various articles and works cited in previous pages.

increase the dose gradually in order to obtain the desired effects. In this way, very large doses have been given. Babington* gave as much as thirty-six grains three times a day, without producing any ill effects. Another physician reports† that he has given forty grains, three times a day, for a long period, without any ill effects. Ordinarily, however, it acts as an immediate emetic in large doses. Christison,‡ in regard to the effects of frequent small doses, remarks that he has often given, medicinally, from three to six grains daily, for weeks, without observing any particular effect, except, in some persons, sickness when the larger doses were taken. He adds, that others have frequently made the same observation. In fact, it would seem that if the sulphate, which might occur in drinking-water, had any action upon the human system, it would be favourable, in the way of a tonic, rather than otherwise. As an argument, too, in support of the harmless nature of the very small doses which we have under consideration, mention may be made of the very general silence of authorities on the subject.

On the other hand, the acrid, corrosive nature of the chloride of zinc very naturally occasions a suspicion that even small amounts of it would prove injurious. But it has been administered internally, in small doses, for the relief of certain affections, when it has been considered to act as a slight tonic and stimulant. Pereira‡ observes that, taken in very small doses, no obvious effects are produced, except sometimes the amelioration of certain diseases. He states, further, that when applied externally, as a caustic, there is no danger of any constitutional disorder arising from the absorption of the poison, as is the case with the arsenical and mercurial caustics. Common testimony also establishes the fact that the system becomes habituated to the presence of this compound, so that doses of it require to be increased gradually in chronic affections; in this way, even twelve grains have been given daily without ill effects, though ordinarily one generally commences with a dose of about one-half a grain.

Oosterlen † states that, in small doses, it produces no obvious effects, being similar, in this respect, to the other soluble salts of zinc.

Van Hasselt‡ observes that the long-continued administration of two to four and more grains daily is reported to have given rise to affections simulating chronic mercurial poisoning, but makes no mention of ill effects from more minute doses.

Indeed, there seems to be no authority for the assumption that the chloride is injurious, even if it be allowed that the greater part, or the whole, of the zinc, which occurs in solution in water drawn through galvanised iron pipes, is in this form. Further, the fact must be borne in mind that the zinc salt or salts in this water are in an extremely dilute condition—usually but a small fraction of a grain of metallic zinc being detected in the gallon. Now, it has been estimated§ that a healthy adult man consumes a little over four and a half pounds of water daily, in food and drink, or a little less than four and a half pints (apothecaries'). If, then, a given water contained, in solution, one grain of zinc salts to the gallon, which would be absolutely exceptional, only

about one-half a grain would enter the stomach in twenty-four hours; and it has been shown that any of these salts may be taken in larger doses, three times daily, with slight, if any, effect upon the system.

Notwithstanding the prejudice existing in a few localities (which we have shown to be unsupported by the facts), against the use of zinc pipes, the general opinion is decidedly opposed to the idea of danger from their employment, and this fact is attested by the constantly increasing demand for such pipes. In Philadelphia alone, where there are five establishments for the manufacture of galvanised iron, about five million feet of pipe were sold during the year 1873 and sent to different parts of the country.

Inquiries addressed to the superintendents of the water-works of Salem, Beverly, and Cambridge, Massachusetts, and of Portsmouth, New Hampshire, where galvanised iron pipes have been used extensively for several years, have elicited replies, based upon the observation of the writers, the opinions of the water consumers and of reliable physicians and chemists whom they have consulted, to the effect that the use of these pipes is unattended with danger to health. The following extract, from the communication of Mr. D. H. Johnson, Jun., superintendent of the city water works in Salem, will serve to illustrate the general opinion expressed in the above and other communications received by the writer.

'It is only my province, as a practical man, to give you facts. We have, upon these works, 4,300 services inserted to the walls of buildings, containing 128,500 feet of galvanised iron pipes, or say twenty-four miles. There are as many more feet of pipes inside the walls of the houses, running (as is generally the case) across the cellars to the back part of the houses, and then up to the draw-faucets in the sinks and to tanks in the top of the buildings. In round numbers, it is safe to say, forty-eight miles.

'Our medical men in this city have been consulted during the past five years upon the subject, and they have failed to trace, even in a single instance, any disease arising from, or to find any evidence of injurious effects from drinking-water drawn through such pipes.'

In the extensive zinc and galvanised iron manufactures of Europe, practical experience and expert testimony* have demonstrated conclusively that the workmen suffer no deleterious effects which could be ascribed to the zinc to which they are exposed in various ways. The same is true of the galvanising works in this country. In reference to this point, communications have been received from the directors of large establishments in Philadelphia and Pittsburg, Pennsylvania, stating that 'the workmen employed are as stout, strong, healthy and able-bodied men as can be found in any of our iron mills,' and that none of them have ever been affected with any sickness which was attributed by themselves or physicians to the effects of the zinc to which they are constantly exposed. Some of them have been employed in these and in European manufactures for twenty years and more, without having experienced any ill effects, and still do a good day's work.

Many entertain a suspicion that the use of these pipes and tanks may be dangerous, in consequence

* *Guy's Hospital Reports*, no. 12. 1841.

† *Med. Times and Gazette*, vol. i. p. 227. 1862.

‡ *Loc. cit.*

§ *Treatise on Human Physiology*. By J. C. Dalton, M.D. 3rd ed. p. 70, 1864.

* Consult papers by Bouchet, Chevallier, Lévy, Hirt, and others, *loc. cit.*

of the poisonous impurities which, it is said, the zinc coating may contain.

It is known that zinc ore contains many impurities. In the process of smelting, however, it is freed from these to a great extent, though not completely, and commercial zinc or spelter is never absolutely pure, but contains, generally, traces of sulphur, iron, and arsenic (Brande and Taylor). Other authorities also mention, in addition to the above, lead, tin, cadmium, and carbon. In the process of galvanising iron, again, these impurities become separated from the zinc to a still greater extent, so that the zinc coating contains but the merest trace of them. The essentials of this process have been given before. The zinc is placed in large vats, generally holding about twenty tons, and subjected to a heat of about 740° Fahr. This heat necessarily expels nearly the whole, if not all, of the remaining sulphur and arsenic which were not separated from the original ore by the primary smelting process. At the same time the contained lead, iron, cadmium, &c., are melted with the zinc, but are rapidly deposited at the bottom of the vat, in consequence of their greater specific gravity. These precipitated matters form a waste, called the 'dross,' which amounts, in each vat, to six or seven thousand pounds weekly, and is shown by analysis to be composed as follows:—

| | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|--------|
| Zinc | . | . | . | . | . | . | . | 94.88 |
| Iron | . | . | . | . | . | . | . | 3.55 |
| Tin | . | . | . | . | . | . | . | 1.00 |
| Lead | . | . | . | . | . | . | . | .30 |
| Balance of other metals | . | . | . | . | . | . | . | .27 |
| | | | | | | | | 100.00 |

The specific gravity of this dross is 7.06, while that of ingot zinc is 6.86. Now, as all iron is zincd from the top of the vat, it does not come into contact with these impurities, which are at the bottom, and hence the zinc coating can contain but mere traces, if any, of them; at all events, not enough to be the occasion of any deleterious effects upon the human system.

Most of the galvanising in this country is done with the German spelter, which is preferred by manufacturers to the American article, notwithstanding its increased cost, 'because it is thought to make the best finish, running brighter and thinner on the iron than the product of our native mines.' Now this German zinc contains usually, according to numerous analyses, but a fraction of one per cent. of lead, the only ingredient which can possibly be the occasion of suspicion. As the greater portion of this minute quantity is precipitated to the bottom of the vats, the still more minute quantity which is present in the zincd product, evidently is unworthy of attention in the way of its endangering health.*

To recapitulate: it is proved theoretically, experimentally, and practically, that zinc is acted upon by ordinary drinking-water; that water, allowed to stand in reservoirs, or drawn through pipes of zincd or galvanised iron, usually contains an appreciable amount of zinc, more or less, according to various influences; that the zinc, contained in the water, is in the form of undissolved oxide and carbonate and of dissolved salts, the exact nature of the latter not being known; that probably under no circumstances is the oxide or the carbonate an active or gradual

poison, much less in the amounts in which they can occur under the conditions mentioned; that, at least with water fit for drinking purposes in other respects, the contained zinc salts in solution do not exert any deleterious effects upon the human system; finally, that, even if all the zinc in solution were in the form of the chloride, which is known to be the most active poison of the zinc salts, the amount would still be insufficient to endanger health.

OBSTETRICS AND GYNÆCOLOGY.

ZWEIFEL ON THE INFLUENCE OF INHALATION OF CHLOROFORM ON THE FÆTUS DURING DELIVERY.—Dr. Zweifel (*Berliner Klinische Wochenschrift*, May 25, 1874), observing that children born when chloroform had been administered to the mother were frequently jaundiced, was induced to make some investigation to see whether the anæsthetic could be traced to the child, which might explain the excess of jaundiced children when the mothers were chloroformed.

He first searched for chloroform in the placenta. This was carefully washed and then cut up into small pieces and placed into a retort, and distilled by means of the sand-bath. There was a perceptible odour of the vapour; but to be more sure he tested for it, and in every case a trace was found. He then proceeded to examine the urine of children whose mothers had been anæsthetised, and without exception found chloroform.

In one case, whilst the anæsthetic was being given to the mother, the fœtal pulse suddenly became less frequent and the sounds scarcely audible. Delivery had to be hastened to rescue the child.

From the experiments made he came to the conclusion that chloroform inhaled by the mother passes to the child, and it is anæsthetised with the mother. As narcotism is contraindicated in children, Dr. Zweifel intends prosecuting his investigations to see to what extent it can be given without injury to the child.

W. C. GRIGG, M.D.

GILLESPIE ON CAUTERISATION OF THE UTERUS. Dr. Wm. A. Gillespie, of Louisa Court House, Virginia, writes to the *Boston Medical and Surgical Journal* as follows. 'Much has been said about the difficulties and different plans of cauterising the internal surface of the cervix uteri and of the body of the uterus, and of the dangers of injecting any liquid caustic preparation into it. I am, therefore, prepared to give a simple, easy, and efficient plan for cauterising the canal of the cervix, and even the cavity of the body of the uterus. I have practised it repeatedly, in a large number of cases, with the happiest results.

'Take an ordinary sponge-tent and coat it with beeswax, and then roll it for some time with a knife in powdered nitrate of silver, which will sink into, and adhere to, the wax. Then through a suitable speculum carry the prepared tent through a cervix, and if desirable, to the fundus, and let it remain twenty-four hours. No remedy in my hand has done more good in as short a time, in chronic inflammation, engorgement, enlargement, or ulceration of the os and cervix uteri, and I have never known any unpleasant results from it.'

* Compare Report of State Board of Health of Massachusetts for 1871, p. 42, as to amounts of lead required to produce injurious effects.

MISCELLANY.

A COMMITTEE on Medical Statistics is about to meet in Berlin under the Presidency of Herr Bitter.

SMALL-POX IN STOCKHOLM.—During the week ending June 5, there were 122 cases of small-pox in Stockholm, with 28 deaths. From the outbreak of the epidemic, the number of cases was 4,021, and of deaths, 857.

It is stated that Professor Piazzi Smith, who has an extraordinary affection for the great pyramid of Egypt, has resigned his fellowship in the Royal Society because that body refuses to receive a paper in which he claims to have proved that the said pyramid was built by Melchisedec under Divine inspiration.

THE COMMERCIAL VALUE OF ABSTRACT SCIENCE.—Though the possibility of producing alizarine by artificial means was demonstrated only in 1868, the production in Germany during 1873 reached the figure of 1,100 tons, with a value of 600,000*l.*; and it is announced that one single establishment of Germany, where there are ten or twelve in all, is preparing for a production of 5,000 tons of alizarine paste per year.

THE HORSE AND HIS RIDER.—M. Perret, a French pharmaceutical chemist, has discovered a very simple and economical method of saving horses, particularly when they are not in motion, from being tormented by flies. It consists in merely rubbing them with a little concentrated oil of laurel, which is extremely disliked by the flies. The oil should be specially applied to the parts where the flies usually settle. With about three pennyworth of this oil a horse can be anointed for three days. There is not the slightest danger in using it, and, indeed, its slightly stimulating action is beneficial to horses, and keeps their coat in good order. This expedient may also be usefully replaced by a solution of 60 grammes of assafoetida mixed with one glass of vinegar and two of water. The strong odour of the assafoetida drives away the flies, and if horses be well washed with this, not a fly will settle on them. No apprehension need be felt in using the assafoetida, which has no deleterious properties.

A NEW SUBMARINE THERMOMETER.—Dr. Carpenter lately placed before the Royal Society a new meteorological instrument constructed for him by Negretti and Zambra. This instrument enables the true temperature of the sea at any given depth to be ascertained. Up to the present time there has been no certainty of an exact determination of the temperature at the actual depth, by sinking the thermometer in submarine soundings; because the registering instrument was subject to the influence of the layers of water through which it passed both in descending and in ascending. The new thermometer avoids this uncertainty. It is composed of an ordinary glass thermometer with a round bulb, which bends back in the form of a siphon, and has a small reservoir of mercury at the lower end of the retroverted limb. A very simple mechanical arrangement gives this apparatus a tilting movement, which completely inverts it when it reaches the precise depth at which it is desired to observe the temperature. By a rotatory movement round an axis, the bulb of the thermometer is raised and then sunk again, and the mercury which has then passed from the limb bearing the reservoir, into that which corresponds to the scale of degrees, remains there and indicates the exact temperature of the medium at the moment of rotation. A clock-work movement analogous to that of an alarm, applied to the rotatory mechanism, allows it to be used both on land or in a balloon, at any hour of the night or day, regulated in advance by the alarm. The instrument thus modified indicates the temperature of the medium, into which the thermometer was plunged at the moment of rotation. By the aid of this movement, the instrument described can be as easily applied to terrestrial as to submarine observations.

THE fourth International Pharmaceutical Congress will be held in St. Petersburg in August next, commencing on the 1st (13th) of the month.

THE new Pathological and Anatomical Institute in Padua was opened on May 20, in the presence of a large assemblage. An address was delivered on the occasion by Professor Brunetti; and busts of Morgagni, Rokitanaky, and Virchow were unveiled. Padua, it will be remembered, was the scene of Morgagni's teaching.

THE LIFFEY AND THE IRISH PUBLIC HEALTH BILL. The abominable and poisonous stench with which the Liffey infects the air of Dublin may possibly be borne with a nearer approach to resignation, if it may be reasonably hoped that the progress of the Public Health Bill (Ireland) in the House of Commons will not be checked by the obstructions which the Corporation of Dublin are interposing to its passage. The poisonous state of that gigantic sewer—for as it runs through Dublin the Liffey is nothing else than an open ditch, of which the water is thick with putrefying sewage—is a standing example of the manner in which the Dublin Corporation understands and carries out its sanitary duties. For years it has delayed, and jobbed, and quarrelled over the purification of the Liffey, and it wakes up to find that while it has been delaying, values have been rising. To purify the Liffey now will cost the ratepayers half as much again as it would have done ten years ago. All the sanitary affairs of Dublin have been managed in the same way. Three years ago, when the *British Medical Journal* sent over a commissioner of inquiry, he reported that fever patients were carried about the city in costermongers' carts, that the so-called disinfecting chamber was nothing else than a smoke-cupboard, and that the whole sanitary administration was a mockery and a sham. The Dublin journals followed suit, and a voluntary sanitary association has been formed, which has forced the Dublin Corporation into some pretence of activity; but a very pitiful and hollow pretence. It is characteristic of their whole spirit in sanitary matters, that their main ground of opposition to the Public Health Bill now is, that it does not give them enough of patronage in the posts to be created.

NOTICE.

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The London Medical Record.

WEDNESDAY, JULY 1, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

LECTURE UPON THE GENERAL THERAPEUTICS OF THE NERVOUS SYSTEM. BY E. C. SEGUIN, M.D.*

Gentlemen,—I have thought that the last hour of your survey of nervous diseases could not be better spent than in a rapid review of certain principles of therapeutics, and in a partial study of the remedial agents classified as much as possible in accordance with these principles. In offering you the following classification, I wish to warn you that it has little in common with the therapeutic propositions which you will find in text-books, whether upon the practice of medicine or upon diseases of the nervous system. Inasmuch as the ground to be gone over is large, you will pardon me if I restrict myself to short practical remarks upon the various heads of the lecture.

The following is the classification which I have long had in my mind, and which I now submit to you:

- | | | |
|---|--|------------------------------|
| A—Agents which affect the blood-supply of nervous system. | 1. Agents which increase the blood-supply. | |
| | 2. Agents which diminish the blood-supply. | |
| B—Agents which affect the substance of nervous system. | 1. Agents which increase action of | a. brain. b. spinal cord. |
| | 2. Agents which diminish action of | a. brain. b. spinal cord. |
| C—Restoratives and Tonics. | | |
| D—Counterirritants. | | |
| E—Electricity. | | |
| F—Hygienic means. | | |

CLASS A.

Means which affect the Blood-supply.

The indication for affecting the blood-supply of a nerve-centre is sometimes a perfectly correct and logical one. In practice, we have a certain class of cases in which the symptoms are due to hyperæmia of nerve-centres, and also a certain class in which the symptoms are due to anæmia of nerve-centres. The vital question is to determine whether the hyperæmia or anæmia be primary or secondary.

Few questions in pathology are of more importance than this, and few have caused such prolonged discussions. This is not the place to examine this matter, and I must limit myself to stating the conclusions to which experience has led me. I believe that true primary hyperæmia of the brain or spinal cord is a very rare affection, infinitely rarer than the teaching of books would lead us to suppose. In many so-called cases of cerebral congestion there is, I believe, no hyperæmia, but only malnutrition, which may be attended by a secondary and passive congestion. In all such cases, the leading indication

is not to deprive the nervous centre of blood. The effects of anæmia are better known and more commonly observed; and it is an instructive fact to recollect that what we to-day consider as typical of anæmia (epileptic loss of consciousness) was not many years ago looked upon as typical of hyperæmia. In brief, I believe that the indication to diminish the amount of blood circulating in the brain (and spinal cord) is very rarely presented to us practitioners, and that the contrary indication is much more commonly encountered.

The first class of means is subdivided into two subclasses.

1. Means which increase the blood-supply.

This subclass may be still further subdivided as follows:

- a. Decubitus, or posture.
 - b. Compression of arteries of limbs.
 - c. Stimulants.
 - d. Agents paralyzing the vaso-motor nerves.
 - e. Measures which act by increasing the activity of the nervous centres.
- a. The amount of blood in the spinal cord can be materially increased by placing the patient upon his back. The amount of blood in the brain can be materially increased by elevating the legs and arms. In syncope, therefore, and in all cases where we may suppose that anæmia of the brain is present, the first thing to be done is to place the patient upon his back, and we may, besides, elevate the limbs and trunk. Anæmic patients, who have no positive disease, but who at times feel weak and faint, or suffer from attacks of vertigo, should also have recourse to this means.

b. Compression of the arteries of the limbs is a very important and powerful means. This should be done by tourniquets, as ordinary bands alone will not arrest the circulation carried on through the arteries, but will prevent the return of blood to the body. This procedure is one which is rarely resorted to, and I would recommend its execution only in extreme cases of cerebral anæmia, as a means next to transfusion. The tourniquets should be applied not simultaneously, in order that you may study the reaction of the heart. In the days when epileptic seizures were regarded as due to cerebral hyperæmia, compression of the carotids was advised and done to cut short the paroxysms. Insensibility can in this manner be produced in the healthy individual. In epileptics the results obtained were not satisfactory, and the measure is one which we now condemn as unphysiological. Besides, in pressing upon the carotid we act upon the vagi, and influence the heart in that way.

c. Of the stimulants, alcohol is the best. Preparations of ammonia are employed, but they are less efficient than alcohol. The dose of alcohol in cases of anæmia of the nervous centres is to be gauged only by the degree of reaction observed. In the drowsiness and exhaustion which result from prolonged exposure to cold with or without over-exertion, in cases of loss of blood, brandy will be tolerated in enormous quantities, and the subject saved. In general terms, food is to be regarded as a stimulant, for the general circulation is made more active by taking it. Probably many of you have had an afternoon headache magically cured by dinner.

d. Paralyzing the vaso-motor nerves, by producing enlargement of the arteries, is productive of hyperæmia in the arterial district to which the nerves are distributed. This proposition is demonstrable by

* From *The New York Medical Record*.

experiment upon animals. If we cut the sympathetic nerve in the neck (as was done by Pourfour du Petit in 1712), we obtain a dilatation of all the arteries of the superficial parts of the head, and of all parts of the face, together with contraction of the pupil. As signs of hyperæmia, we observe increased size and pulsation of arteries, redness, increased heat, increased secretory action. If we excise the superior cervical ganglion of the sympathetic, we produce hyperæmia of the brain itself. In medicine, we cannot resort to this radical means of paralysing the vaso-motor nerves. Of means to be used for this purpose, the most effectual is inhalation of the nitrite of amyl. The proper dose is from two to five drops. If the remedy is to be administered by the medical attendant, it needs no preparation; five to ten drops may be poured upon a cloth or handkerchief, and a part or the whole of the quantity allowed to enter the patient's nostrils. In many cases the physician is away during the illness or seizure requiring the use of nitrite of amyl, and the nurse may give it safely, diluted in alcohol, in such a way that a teaspoonful shall hold the proper dose. The effects of nitrite of amyl, apparent in a few seconds, consist in hyperæmia of the head and face, of increased action of the heart, and of redness and heat in the remainder of the body sometimes. From the condition of the face and the external parts of the head, and from the sensation of fulness in the eyes and within the head, associated often with giddiness, we infer that there is hyperæmia within the cranium as well as without. One indication for the use of this remedy we find in the condition present at the commencement of an epileptic convulsion. In the very earliest stage, during the occurrence of the aura, or the period preceding the aura, which is recognised in some patients, is the proper time to resort to this remedy. If used then, or at the moment the spasm of the vaso-motor nerves commences, indicated by the first signs of failure of consciousness, in many cases the attack can be aborted; in others diminished in severity. Nitrite of amyl has also been used with success in angina pectoris, in asthma, and in various spasmodic affections, involving muscular or vascular parts.

Chloroform has been used in the same manner, but its mode of operation is unknown, and it is much less effectual.

Another means is by overstimulating the sympathetic nerves, but this cannot be employed with any great degree of certainty. This is more theoretically than otherwise correct (*vide infra*, subclass 2, e).

e. The means which produce functional hyperæmia are exceedingly numerous, embracing as it does all those agents which increase the activity of the nervous centres. Hyperæmia of the nervous system occurs as the result of functional activity in the same manner as it is developed in the various organs of the body as the result of the same cause; such as the congestion present in the stomach and intestines and liver, during digestion, etc. In this connection it is well to remember that it has been shown that increased temperature about the head is developed during exercise of the mental faculties, or by the operation of emotion.

The medicines referred to will be found in class B, subclass 1.

2. The second subclass of A embraces all the means employed to diminish the amount of blood circulating in the nervous centres.

a. Venesection.

b. Decubitus.

c. Compression of veins of the limbs.

d. Cold.

e. Those means which stimulate the vaso-motor nerves.

f. Means which diminish the activity of the nervous centres.

a. There can be no doubt that blood-letting, if sufficiently large, will produce cerebral anæmia, for, although physiologists still believe that the quantity of contents of the cranium is invariable, yet they to-day admit that the amount of intracranial blood may be reduced; serum taking its place about the vessels and in the subarachnoid space. I need hardly tell you that bleeding is out of fashion, and that we nowadays never use it. I would, however, say that with sufficient symptoms of sudden and violent cerebral hyperæmia occurring in a subject full-blooded enough not to be injured by the loss, I should bleed without hesitation, by a large opening, and to impending syncope.

It is perhaps right for me to speak here of leeches and wet cups, in order to express my belief that these agents do not relieve hyperæmia of deeply placed organs so much by withdrawing blood, as by irritating nerves, and thus acting upon the vaso-motor nerves of the affected parts. These means should therefore be placed in class D, with counterirritants.

b. If the brain is the nervous centre to be affected, the *decubitus* should be with the head raised; or the patient should be placed in a chair with his legs and arms in a dependent position. This latter posture is useful in certain cases (rare, I believe) of insomnia dependent upon true, primary cerebral hyperæmia.

In cases of spinal congestion, myelitis, or any affection of the spinal cord attended by congestion, place the patient upon his face. Relief may be secured by permitting the patient to occasionally lie upon the side, but lying upon the back should be almost entirely forbidden.

c. Compression of the veins of the limbs may be effected by means of ligatures. Formerly employed in convulsive affections, it has now fallen into almost complete disuse.

d. Cold, when used in a proper manner, undoubtedly has the power of diminishing the amount of blood in a part deeper than the skin. It must, however, be applied continuously if any benefit would be derived. In the treatment of meningitis and all affections in which there is present hyperæmia, either primary or secondary, within the cranium, ice should be placed upon the head and at its base for considerable periods of time, carefully watching the effects in order to remove it at once if there is evidence that too much depression is being produced. The same means may be used with benefit in intraspinal inflammation and congestions.

Cold is also applied to the back of the neck and upon the spinal column with the object of acting, through the spinal cord, upon the vaso-motor nerves going to distant organs.

A word as to the means of using cold. You will hear Chapman's India-rubber bags highly recommended, but I suspect that their cleanliness and ease of application are what have caused their fame. It is best to apply the ice in block immediately to the skin, well guarded by cloths to catch the drippings; or pounded ice (with or without salt), enclosed in a cloth or bladder, may be used; or, lastly, the ether spray-douche may be employed.

e. The vaso-motor nerves may be directly stimulated by galvanism, causing contraction of the arteries supplied by these nerves, and consequently anæmia of the parts to which these arteries go. This may be experimentally demonstrated, for the face, by galvanising the sympathetic in the neck; for the fundus of the eye and the brain, by localising the action of the current upon the superior cervical ganglion. The positive pole should be applied under the ear, in front of the mastoid process (small electrode), the other electrode be placed upon the fifth cervical vertebra; the current of from four to eight Stöhrer's cells, allowed to pass for one to two minutes. Evidence of spasm of the cerebral arteries is obtained in the shape of vertigo developed at the moment of closing and opening the circuit. The vessels of the fundus of the eye have been seen to grow smaller under this application. Anæmia of a part of the brain is no doubt the inevitable immediate result of thus irritating the superior cervical ganglion, but a law of physiology stands in the way of our accepting this as a means to be used to meet the indication of diminishing the supply of blood. The law I refer to is that of neverfailing relaxation after spasm, of exhaustion after stimulation. This law leads me to believe that after the primary cerebral anæmia produced as above described, there is a consequent, equally inevitable relaxation of blood-vessels and hyperæmia produced. This is how I would justify the placing of this means, galvanisation of vaso-motors, among those which increase the amount of blood in the brain (*vide supra*, subclass 1, d).

Among medicinal agents, I know few which will stimulate the vaso-motor nerves, which are not medicines that should be embraced in another class. One exception, perhaps, is ergot. Some recent observations seem to indicate that ergot diminishes the amount of blood circulating in the spinal cord and in many other tissues. It has been demonstrated that belladonna in small doses will accomplish the same thing. These two remedies, therefore, are quite generally used in the treatment of congestions and inflammations affecting the nervous centres. We are indebted to Dr. Brown-Séquard for their introduction into practice upon correct indications.

f. Diminution of the activity of the nervous centres may be brought about by mental and physical rest. By mental rest I understand, not inactivity, but a cessation of the strain, intellectual or emotional, which has acted upon the patient. The merchant or professional man should diminish or cease altogether his work, whether in the way of actual labour or responsibility; he should resort to other occupations and to amusement. On the contrary, the emotional girl, or the insane subject, should be given work, physical if possible, in order to withdraw the attention from the contemplation of delusive sensual or pure emotional subjective creations. The operations of grief, of misery, of concentration in a diseased self, should be remedied by a variety of means (including amusements) which will suggest themselves to you. At all events, please remember that mental rest is not synonymous with inertia or idleness.

Physical rest is of great utility, and has been employed in locomotor ataxia with especial benefit.

Various remedies may be used for the purpose of diminishing the activity of the nervous centres, and these will be referred to in subclass 2 of the next class, B.

(To be continued.)

HITZIG ON EXPERIMENTS ON THE BRAIN.*

In this volume Hitzig reprints the first paper on the electrical excitability of the brain, which he published in conjunction with Fritsch in Reichart and Du Bois-Reymond's *Archiv* for 1870 (Heft 3), as well as a second by himself on the same subject in a subsequent number of the same *Archiv* for 1873 (Heft 3 and 4, published in January, 1874.) Besides these, there are other papers containing new researches relating to the physiology of the nervous system. The third paper in the volume is entitled 'Kritische und Experimentelle Untersuchungen zur Physiologie des Grosshirns, im Anschluss an die Untersuchungen des Herrn Professor D. Ferrier in London.' This paper is devoted to an examination of the researches on cerebral physiology and pathology which were published by the reporter in the *West Riding Lunatic Asylum Medical Reports*, vol. iii. 1873, which appeared in the beginning of August of that year, and of which an abstract had been published in the *British Medical Journal* for April 26, 1873.

Hitzig complains in a spirit of great bitterness of the relatively greater amount of credit which has been accorded to the reporter than to him; claiming for himself the discovery and clear enunciation of all the main facts of the research so long as three years ago, and charging the reporter with having given too little credit to his labours, and published as new discoveries what he had already ascertained and described. He speaks of the reporter's experiments as being merely a repetition of his own, and as adding little new to the facts already made out by him. He likewise contests many of the statements made by the reporter, and endeavours to show that the method of experiment followed by him is full of fallacies, and that the conclusions founded on it are untrustworthy as compared with those obtained by the method of galvanic excitation which he himself follows. The applications of the facts of experiments to the elucidation of obscure points in the physiology and pathology of the brain made by the reporter, he regards as unwarranted and hypothetical, and in general endeavours to depreciate the value of the reporter's contributions to cerebral physiology, as compared with the much greater accuracy and definiteness of his own.

Much of the animus in which Hitzig writes may be excused by the feeling of disappointment naturally arising in the mind of one who, having in his hands a potent instrument of research, makes but a limited application of it, and fails to push the facts of his discovery to their logical termination.

The merit of the discovery of the method of exciting the functional activity of the brain by electrical stimulation belongs to Fritsch and Hitzig, and this the reporter has distinctly recognised and willingly accords to them. But though a new method potentially contains the germ of all that grows out of its application, the discoverer of the method can hardly lay claim to all the facts and their applications to which it may lead in the hands of another. Fully three years had intervened between the publication of Fritsch and Hitzig's results, and the appearance in full of the reporter's first paper; and before Hitzig had added to the facts already published by him and Fritsch in 1870, the reporter had communicated to

* *Untersuchungen über das Gehirn.* Von Dr. Eduard Hitzig. Berlin, 1874, p. 276.

the British Association in September 1873, the facts and conclusions founded on them of an extensive series of experiments not only on dogs, but on cats, rabbits, guinea-pigs, jackals, numerous monkeys, and also on birds, frogs and fishes. Abstracts, of an imperfect nature it is true, of the reporter's paper at the British Association, appeared in the *Times* of September 22 (from which Hitzig quotes), as well as in the other papers and medical journals of about the same date. The results of these later experiments, in all essential particulars the same, but with numerous additions, were embodied in detail in a paper on 'The Localisation of Function in the Brain,' presented to the Royal Society on February 20, 1874, of which a short abstract of the main facts has been published in the *Proceedings of the Royal Society*, no. 151, 1874.

In the second paper, which, however, Hitzig has not seen in full, all the facts of Hitzig's late experiments on other animals have already been anticipated, and much more.

Hitzig's second paper was not published till January, 1874, and in this he has added but little to the facts narrated in the paper he wrote in conjunction with Fritsch, already alluded to. The reporter's allusions to Hitzig's researches are of necessity to be considered as referring to the first, which alone he could have seen, seeing the second paper did not appear till some months subsequently to the announcement of the reporter's results. Hitzig's experiments were confined to a very imperfect exploration of the hemispheres in dogs, and it can hardly be said that the reporter's research is merely a repetition of Hitzig's, when in the first paper not only had the hemispheres of dogs been almost completely investigated, but also those of cats and rabbits, along with the corpora striata, the optic thalami, the corpora quadrigemina, and in rabbits the cerebellum. Without alluding to the more complete series of experiments described at the British Association, and embodied in the paper presented by the reporter to the Royal Society, it will be sufficient to examine Hitzig's claims and charges by reference to his first paper, which was the only one which had appeared when the reporter had published his in the *West Riding Reports*. In this the reporter thus alludes to Fritsch and Hitzig's researches: 'We owe to Fritsch and Hitzig a demonstration of the fact that the brain is not, as has been generally stated, unsusceptible to every kind of irritation. They showed that irritation of the anterior parts of the brain by a constant current gave rise to certain movements on the opposite side of the body, and they attempted to localise in certain definite points the centres for such muscular movements. Their researches in this direction were not carried very far, nor do they, I think, clearly define the nature and signification of the results at which they arrived' (p. 32).

The exact extent of Fritsch and Hitzig's research will be best described in their own words. (The references are to a woodcut of the brain of a dog on which the five points—and they are only points—are marked).

'The centre for the neck-muscles (Δ Fig. 1) lies in the lateral part of the præfrontal gyrus, at the point where the surface of this convolution abruptly descends. The outermost end of the post-frontal gyrus contains (*birgt*) in the neighbourhood of the lateral end of the frontal fissure (+ Fig. 1) the centre for the extensors and adductors of the fore-limb. Somewhat behind the same and nearer the coronal fissure

(+ Fig. 1) lie the ruling centres (*vorstehenden Centralgebiete*) of the flexion and rotation of the limb. The centre for the hind-leg ($\#$ Fig. 1) is also found in the postfrontal gyrus, but nearer the middle line than that of the fore-leg, and somewhat farther back. The facial (\odot Fig. 1) is innervated from the middle part of the supersylvian gyrus. This region generally has an extension of over 0.5 centimètre, and stretches from the principal bend (*Hauptknickung*) above the Sylvian fissure before and behind.

'We must add that we did not always succeed in setting the neck-muscles in action from the first-mentioned point. The muscles of the back, tail, and abdomen we have often enough excited to contraction from points lying between those marked, but no circumscribed point from which they could be isolated irritated could be satisfactorily determined. The whole of the convexity lying behind the facial centre we found absolutely unexcitable, even with altogether disproportionate intensity of current,' (pp. 13-14).

This forms the sum and substance of all that Fritsch and Hitzig made out in their research. Whether they had observed the definiteness and purposive character of the actions which the animal is made to perform when these centres are stimulated or not, it cannot be said that they have clearly expressed the fact in their description. What is meant by the 'facial centre,'—what is the nature of the action which it excites, they nowhere describe. The facial nerve innervates numerous muscles, but they leave it entirely vague as to whether the actions they observed can or cannot be compared with the definite results described by the reporter. A centre for the hind leg explains nothing of the character of the action which stimulation induces. So also 'centres for the extensors, flexors, and rotators of the fore-limb,' merely vaguely indicate that which is the real and essential nature of the acts which the animal is made to perform. What may have been the result of stimulation of the 'centre for the neck-muscles' is nowhere indicated. The definite and purposive character of the actions excited, and their evident relation to the habits and intelligence of the animal, are not brought out; and the grounds of comparison are so indefinite that the reporter could scarcely bring them into exact relation with the results of his own method. He is inclined to think that the method followed by Hitzig was not the best calculated to express the real meaning and extent of the muscular contractions they observed.

As regards the 'neck-centre' the reporter has differentiated different points for definite actions, and determined the respective effects on the eyelids, eyeballs, and pupils. Such a compound result can hardly be generalised into a 'neck-centre.' The individual movements of the fore and hind limbs and paws are definitely described by the reporter, and the extent of the respective areas marked off. What Fritsch and Hitzig call the 'facial centre' is only a minute point in an extensively differentiated area of complex movements. All the rest of the brain giving the definite results described in the reporter's paper is absolutely unexplored.

Thus far in proof of their 'not having carried their researches very far.' What interpretations these authors put upon the results of their experiments may be gathered from the following, in which it will be seen that they come to a view entirely different from that which the reporter holds, and one which he regards as radically erroneous. Fritsch and Hitzig, after

discussing the various possibilities as to the relation of these centres to the 'will' and '*Seele*,' come to the conclusion that the only method of 'experimentally solving the question as to the signification of the individual parts of the cortex, is the extirpation of circumscribed and accurately ascertained parts of the same' (p. 28).

In pursuance of this, they performed extirpative experiments of certain centres in the brain of dogs.

The following words express their views, founded on these and their other experiments. 'Both the animals experimented on, had, after the extirpation of a part of the by us so-called centre for the fore limb, only partially lost the power of moving it, and probably sensibility was not at all affected. But they had clearly only an imperfect consciousness of the condition of this limb, the power to form a complete conception (*vollkommene Vorstellungen*) of the same was lost; they suffered therefore from a symptom, which in a very similar manner occurs in a form of the disease tabes, only that here there was no lesion of the sensory tract. More nearly to indicate this condition, it might be thus expressed:—there remained still some motor conduction from the mind (*Seele*) to the muscle, while in the conduction from the muscle to the mind, an interruption existed somewhere. Possibly this interruption hit the end-station of the hypothetical tract for the muscular sense (*Muskelsinn*); at all events it had its seat at a position in the centre destroyed by us' ('Mögllicherweise betraf diese Unterbrechung die Endstation der hypothetischen Bahn für den Muskelsinn, jedenfalls hatte sie aber ihren Sitz an Stelle des von uns verletzten Centrums,') p. 30.

Whatever interpretation Hitzig may have subsequently put on his experiments, the reporter thinks that by these words they clearly gave it to be understood that they regarded the motor centres as centres of the muscular sense. Having performed similar experiments, the reporter came to a totally different conclusion. He regarded the same centres as the centres of voluntary motion, differentiated above the lower co-ordinating basal and spinal ganglia, and as forming the motor substrata of mind.

From the foregoing analysis of Fritsch and Hitzig's labours, the reporter thinks he has not done great injustice to them by characterising their research as imperfect. And he might have said that not only had they not clearly defined the nature of the results they had before them, but had, in his opinion, absolutely misinterpreted them.

The reporter willingly admits the great service done to physiology by Fritsch and Hitzig in inaugurating a new method of exploring the functions of the brain, and exploding notions which had retarded investigations in this direction, and if he apparently undervalued them by not comparing in every instance his own with their results, it is to be ascribed in great measure to the indefiniteness of their statements. The reporter was likewise following a method which Fritsch and Hitzig regarded as unsuitable for the purpose. In some minor points the reporter has omitted in his first paper to indicate the coincidence of his own observations with those of Fritsch and Hitzig, omissions which he much regrets, on account of the construction which Hitzig puts upon them. He freely allows that they had noted the sensitiveness of the dura mater, and some of the conditions of excitability of the hemispheres. And in reference to the artificial production of epilepsy, he admits that Fritsch and Hitzig observed

epileptic convulsions in the case of two dogs which they were experimenting on. But after noting the facts, they make all their comments thereon in the following words: 'It might be said in objection that the dogs had been previously epileptic. The one dog had, however, been already kept by the same master for six years without having suffered from convulsions. The antecedents of the other remained unknown,' p. 17. With these words the whole subject is dismissed, and no attempt is made to explain the facts, or bring them into relation with the motor centres of the brain or the facts of pathology. It is one thing to state an isolated fact, and another to state it in its various relations and bearings. Fritsch and Hitzig have given no evidence of having appreciated the significance of the facts which lay before them.

Thus far the reporter has considered Hitzig's claims and criticisms in the light of the first papers published by him and the reporter respectively. Before Hitzig had materially added to his first results, the reporter had developed and greatly extended his researches, and announced them publicly at the British Association in September last year. Hitzig's later experiments are made the basis of his criticisms on the results, in some respects imperfect, contained in the reporter's first paper. This is so far excusable, inasmuch as the full details of the reporter's subsequent experiments have not yet been printed. But Hitzig will there find that the reporter has not only confirmed in all essential particulars his former results, but has explained in the light of new experiments the signification in regard to the localisation of sensory centres of many of the external phenomena which result from stimulation of the hemispheres. Hitzig, even in his most recent experiments, fails to add anything new to the facts already detailed in the reporter's first paper, and has not succeeded in localising function to the same extent as he has done, and apparently has no conception of the possibility of localising centres of sensation in what he regards as 'unexcitable' regions. Hitzig has repeated the reporter's experiments on dogs and cats, and he gives a minute analysis of the facts as compared with those related by the reporter. It is impossible without figures to criticise the points of agreement and difference. This must be reserved for another place.

In the main, as far as relates to positive results, Hitzig has discovered nothing new, and does not always succeed in obtaining the results narrated by the reporter. With a curious inconsistency, Hitzig accepts the results in so far as they agree with those obtained by his own method of galvanic excitation, but when he fails to obtain others in which the reporter has succeeded, he invariably denounces as untrustworthy the method of faradisation, and attributes the results to conduction from over-intense currents, reflex action, and the like. The reporter did not experiment with total disregard of such contingencies, and the results he describes are not haphazard, but definite and capable of repeated demonstration. The more rational course would be for Hitzig to adopt a method which succeeds when his own fails, a method which has in the reporter's hands demonstrated the localisation of function in the brain to an extent far beyond that attained by Hitzig. With respect to the conclusions which the reporter has founded on his experiments, which, according to Hitzig were undertaken 'entirely without the necessary physical training, without self-criticism (*Selbstkritik*), without consideration of

foreign not disputed statements,' (p. 112) his critic thus sums up his opinion. 'In short, Ferrier has used these experiments, which with one stroke were to unveil the secrets of every individual province of the brain, to draw the widest conclusions in reference to the pathology of the nervous system, in addition to their bearings on physiology. We went on the opposite principle, with the conviction that the conclusions are easy to draw if only the facts are well substantiated. The reader will be able to judge by which method the subject is more advanced. The results of his hitherto researches will hardly in many respects recall the wish that Ferrier's "ingenium," should once again come to the aid of our imperfect understanding (*mangelhaften Verständnisse*),' p. 111. Whether 'ex pede Herculem' was scorned by Hitzig's 'ingenium' or beyond his 'mangelhaftes Verständniss,' the reporter will not presume to judge; but he is of opinion that Hitzig will yet require to show much better cause than he has done for invalidating the trustworthiness of the facts which the reporter has related, and the applications which he has made of them.

D. FERRIER, M.D.

PATHOLOGY.

NEUMANN AND OTHERS ON THE PATHOLOGY OF MALIGNANT SMALL-POX.—The following is an abstract of a debate a few months ago in the Vienna Society of Physicians. Dr. Neumann read a paper in which he detailed the morbid anatomy of ten cases of 'purpura variolosa.' In three of them he found hæmorrhage in the perineurium of the spinal ganglia of the lumbar nerves; in a fourth there were opacities of the pia mater and arachnoid in the same region, with a nuclear inflammatory exudation on the corresponding part of the dura mater; and, in a fifth, extravasations of blood and granular opacities between the lumbar arachnoid and pia mater. In a sixth case, that of a young woman who died on the ninth day of the disease, there was hæmorrhage in the sheath of the roots of the lumbar nerves. On these facts Dr. Neumann propounded the theory (1) that 'the pains in the back' of malignant variola are due to implication of the posterior roots of the lumbar nerves in hæmorrhage; and (2) that the ecchymoses characteristic of the disease depend on vaso-motor lesions acting through the communicating branches between the posterior roots of the spinal nerves and the sympathetic. In conclusion, the author stated that the results of his inoculation of animals from the pustules of ordinary small-pox were without result, whereas injections with the blood of purpura variolosa did them harm.

Dr. Kaposi asked why any likeness should be assumed between the pathology of variola and that of zona; the latter was a disease of a single nervous trunk, the former one of the entire organisms; nor could accurate localisation of the pain be expected from patients who became very early stupid, and unconscious in a few hours. The occurrence of ecchymoses in the nervous system in this form of disease was no new fact, and could not explain the lumbar pains which exist in smallpox without hæmorrhage. Would Dr. Neumann pretend to separate 'purpura variolosa' from other forms of variola, when transitional cases often present themselves, and when probably the only reason for the ordinary eruption not occurring in the former is their rapidity? Lastly, he

thought no explanation of the locality of cutaneous eruptions could be accepted which did not take into account the zones of Langer and the hair-regions of Voigt. [See LONDON MEDICAL RECORD, March 4, 1874.]

Dr. Auspitz suggested that lumbar pains are not peculiar to the hæmorrhagic form of smallpox, nor even to smallpox at all, since they occur at the outset of most fevers. He could not admit any pathological resemblance between purpura hæmorrhagica and zona.

Professor Hebra (who was in the chair) remarked that lumbar pains are often most severe in the non-malignant cases of variola. As to the distribution of ecchymoses and all kinds of eruption over the skin, he believed it to follow definite laws of which the three factors are nervous supply, the regions of splitting observed by Langer, and the hair-territories of Voigt. On this subject, he hoped before long to make a communication to the society.

P. H. PYE-SMITH, M.D.

BERGERON ON SPONTANEOUS FRACTURES AND DISLOCATIONS IN ATAXIC PATIENTS.—Under this title M. Bergeron (*Le Progrès Medical*) has just published an interesting article which is based on a fact that M. Richet mentioned in one of his last clinical lectures. The readers of the *Progrès Medical* are already acquainted with the subject, for they have had the first communication made by M. Charcot to the Société Anatomique.

Dr. Charcot's case, which gave rise to discussion in which several members of the Society joined, has been since reproduced in all its details in the *Archives de Physiologie* (Jan. 1874), and has besides been inserted by M. Forestier in his Inaugural Thesis (*Thèses de Paris*, 1874). As in cases already mentioned, in the one related by M. Richet, the fracture occurred spontaneously without any traumatic cause, and the union was rapid. On the patient dying M. Richet found an osteitis, which had thinned the bone, and to which he attributed the occurrence of the lesion. This osteitis, which would itself seem to be dependent on the morbid changes in the spinal cord, and at the same time the cause of these spontaneous fractures, would also constitute a condition eminently favourable to a rapid reunion. It is possible that this explanation may be correct. However we ought to receive it with some reservation, and for these reasons; 1. Because in Dr. Charcot's first patient, one of the fractures—that of the left thigh—did not unite; and 2. Because in old men in which an analogous osteitis occurs, as M. Richet remarks, the formation of a callus takes place very slowly, whenever it does take place.

However unimportant these explanations may be, the fact recorded is nevertheless extremely instructive. It remains to be studied, and for the future to decide.

M. A. Bergeron concludes his article with some remarks on spontaneous dislocations in patients suffering from locomotor ataxy. This is a new subject in surgery, but it dates back six years, when M. Charcot made known, for the first time, the occasional existence of this complication with sclerosis of the posterior columns of the spinal cord. A patient suffering from locomotor ataxy, says M. Bergeron, was admitted under the care of M. Béhier. Without any exertion or effort, a dislocation of the shoulder-joint ensued. The patient died of the ataxy, and at the necropsy there was found, not a pure and simple dislocation, but a disruption of the head of the hu-

merus, which, thus deprived of its ligaments and muscles of attachment, had become displaced, and simulated a dislocation.

J. LOCKHART CLARKE, M.D.

MEDICINE.

ROBERTS ON REST IN THE TREATMENT OF CHEST-AFFECTIONS.—Dr. F. Roberts (*Practitioner*, June, 1874) recommends the following methods of treating various diseases of the chest.

Pleurodynia is to be treated by applying two or three strips of plaster firmly round the side over the seat of pain. The emplastrum roborans is a good form of plaster for these cases. In pneumothorax and pleurisy the strapping needs to be very firm and resisting, and therefore the best form is that of plaster covered over with two or three layers of strips of bandage, steeped in a mixture of gum and chalk. Should the pleural sac be much distended, however, the best plan of treatment would be to remove the air from the pleura by means of the aspirator, and then immediately to put on the apparatus. In acute pneumonia a complete state of general rest must be enforced. The physical examination of these cases should be made as seldom, and with as little disturbance to the patient, as possible. The patient should be instructed to limit the number of his respirations, to check his cough, and to speak as little as possible. Strapping does not appear to benefit these cases.

In acute bronchitis the object should be to disturb the patient and the respiratory organs within due limits, and to try and empty the bronchial tubes. Frequent examination is here to be commended; the patient should be directed to take full and deep inspirations from time to time, and coughing is to be encouraged. A half-sitting posture should be adopted, and prolonged sleep is to be forbidden at night as well as in the day time. The act of coughing is often aided by applying a bandage tolerably firmly round the abdomen, including the lower margin of the thorax.

In cases of broncho-pneumonia, the treatment must be determined by the exact conditions of each case.

H. SUTHERLAND, M.D.

FRÄNZEL ON ACUTE PURULENT INFLAMMATION OF THE MEDIASTINUM IN TYPHOID FEVER.—Dr. Fränzel of Berlin records a fatal case of this very rare complication of typhoid fever in the *Berliner Klinische Wochenschrift* of March 2, 1874. A waiter aged fifty-two was admitted into the Charité 'in the course of the second or third week of the disease.' There were no uncommon symptoms: the cardiac dulness was found normal at the first examination: slight dulness existed at the left posterior pulmonary base. The patient was treated with baths. A few days after admission the stools became more frequent and liquid; on the sixth day the strength was manifestly failing, and liquor ferri sesquichlorati, in doses of five drops every two hours, was prescribed, with red wine. In spite of the continuance of the diarrhoea for the next six days, the condition of the patient was not apparently worse on the thirteenth day of his residence in the hospital; the iron was now stopped. Next day a new set of phenomena began. The patient was found to be worse; the pyrexia was increased; there was com-

plaint of sore throat, and pain and tenderness in the neck, and the pharynx presented the signs of catarrh. Slight dulness was found at both posterior lung-bases. On the following evening great dyspnoea set in, compelling the erect posture, and preventing sleep. The appearance of the patient next morning was that of extreme orthopnoea and collapse. The countenance was anxious and cyanosed; the respiratory movements were frequent and superficial, with loud groanings and powerful action of the extraordinary muscles of inspiration. The patient complained of pain in the neck—back and front, and of a severe feeling of constriction in the chest. The jugular fossa in the neck was discovered on examination to have completely disappeared, and to be replaced by a soft somewhat doughy prominence, which extended upwards as far as the lower border of the larynx, and laterally to the outer head of the sterno-mastoid muscles. No other swelling was appreciable about the neck, but all the muscles were tender to the touch. There was a constant and profuse flow of saliva from the mouth; the palate and pharynx were more hyperæmic and swollen than on the previous day; deglutition was not seriously affected. The larynx was apparently healthy. Marked dulness on percussion existed over the manubrium sterni, decreasing in intensity downwards, but reaching the third rib. There was no marked alteration of the pulmonary signs beyond general feebleness of the respiratory murmur. Fränzel's diagnosis was phlegmonous inflammation of the pharynx with suppuration of the connective tissues between the deeper cervical muscles, and extension of the process into the mediastinum. Death speedily followed from suffocation.

The results of the *post mortem* examination confirmed the accuracy of the diagnosis. The subcutaneous and intermuscular connective tissue of the front of the neck was found highly cedematous. The swelling was continued into the connective tissue of the anterior and posterior mediastina, and the exudation here was more opaque and in places even distinctly purulent. The trachea in its whole length was firmly compressed from before backwards. The mucous membrane of the pharynx and œsophagus was swollen, hyperæmic, and soaked with semi-purulent fluid. The laryngeal mucous membrane was not cedematous, but on the right side of the epiglottis, on the upper border, was found a shallow, rather elongated ulcer. The other viscera presented the appearances usually found in typhoid fever.

Dr. Fränzel remarks that this is the first instance on record in which typhoid fever has been complicated with fatal mediastinitis. The inflammation of the connective tissue in this situation was manifestly an extension of the phlegmonous pharyngitis, but it is not so easy to account for the development of the latter disease. The author himself believes that it must be attributed to the prolonged use of the liquor ferri sesquichlorati. Such a result might *à priori* be expected when the frequency of slight ulceration of the mucous membrane of the throat in typhoid fever is considered: and Fränzel's experience of the drug has verified this opinion. Having had occasion to prescribe liquor ferri sesquichlorati in numerous cases of intestinal hæmorrhage in typhoid fever, he observed among these a disproportionately large number of severe affections of the pharynx. As for the treatment of acute purulent mediastinitis—neither bleeding nor even tracheotomy can be expected to be of any use. Long and deep incisions, carried down

to the trachea, would seem to Fräntzel to be the only rational measures to be adopted.

J. MITCHELL BRUCE, M.D.

SURGERY.

AZÉMA ON TRAUMATIC ANEURISM OF THE DORSALIS PEDIS ARTERY: ANOMALOUS COURSE OF THE ANTERIOR TIBIAL.—At the meeting of the Société de Chirurgie de Paris on May 6, 1874, M. Azéma, of the Île de la Réunion, communicated a rather unusual case. A man seventy-one years of age slipped and twisted his foot. This caused the formation of a small traumatic aneurism, only of the size of a nut, on the dorsalis pedis artery just below the annular ligament. After a few months the tumour had attained the size of a pullet's egg. There was a marked bruit. It was so painful as to prevent the patient from sleeping. Compression of the femoral artery stopped the pulsation and bruit.

It was determined to tie the anterior tibial in the lower third of the leg, but on cutting down in this situation M. Azéma could find no artery, though he met with two veins and the nerve. As the course of the artery was anomalous, he recommenced the operation in the upper third of the leg, and there he exposed an artery, pressure on which stopped the pulsation and bruit of the aneurism, and the ligature of which cured the patient. M. Azéma concludes that the dorsalis pedis artery in this case was furnished by the anterior peroneal. Another speaker related an incident which happened in an anatomical examination at Paris, where the candidate, having to tie the anterior tibial artery, could find only a single vein and no artery at all.

[We must confess to some doubts, both as to the propriety of the surgical treatment in this case, and as to the accuracy of the anatomical details. With regard to the former, surely a small traumatic aneurism, the symptoms of which were immediately controlled by compression of the femoral, and which was subcutaneous, might have been treated by some less dangerous operation than the ligature of the anterior tibial artery at the age of seventy-one. Intermitting digital pressure on the sac and on the artery leading to it, is ordinarily quite sufficient in such cases, without exposing the patient to any pain or risk. Yet, if we understand the account aright, the surgeon resorted at once to the ligature, without even giving a trial to any milder measure.

As to the anatomy, if the dorsalis pedis were furnished by the anterior peroneal, which is a branch of the peroneal from the posterior tibial at the back of the leg, how could its pulsation be stopped by tying the anterior tibial on the front of the leg? Allowing that the artery was really absent in M. Azéma's operation, and in the operation on the dead subject which was referred to in the debate (and there is no strict proof that it was really absent in either case), it would seem more probable that it was merely an accidental deviation of the anterior tibial from its usual course. The dorsalis pedis is known to be often deflected outwards from the line which it ordinarily follows, and a similar deflection might in this case have occurred at a higher point in the leg.—*Rep.*]

LE DENTU AND OTHERS ON THE TREATMENT OF TETANUS BY CHLORAL.—At the Société de Chirurgie de Paris on May 6, a discussion took place

on the treatment of tetanus by chloral. M. Le Dentu referred to five cases under M. Verneuil's care, in which cases of tetanus so treated had recovered; but it does not seem to have been alleged that these were of the acute form, and M. Lefort was of the opinion that chloral, whether given by the mouth or injected into the veins, is useless in acute tetanus.

M. Tillaux, however, related a very striking case as follows. A woman who had had a hydatid cyst of the liver opened, complained, about ten days afterwards, of difficulty in mastication, and next day had decided trismus; chloral was given by the mouth but was vomited. This was the day before the discussion. On that morning she appeared dying; the face was blue, asphyxia threatened, the mouth could not be opened, the conveyance of fluid into the pharynx set up spasms. An injection of four grammes (about 3j) of a solution of one part of chloral in two of water was passed into the cephalic vein. She then opened her eyes and began to speak. Six grammes more were injected, producing universal relaxation and calm slumber. She slept for two hours, and then awoke and was calm; but there were slight rigidity and mild spasms. M. Tillaux promised to let the Society know the event of the case.

M. Verneuil testified to the efficacy of chloral in calming the spasms, and seemed to attribute the recovery of his five patients to its use.

T. HOLMES.

SYPHILOGRAPHY.

FOURNIER ON TERTIARY SYPHILIS.—Fournier (*La France Médicale*, May 23, and June 3, 1874) defines tertiary syphilis to be that group of manifestations which is developed when a long interval has elapsed since contagion. He says the natural tendency of syphilis is to reach the tertiary period, though it is not of necessity attained by all the affected. He believes the following reasons to explain why some individuals are attacked more than others. 1st. The conditions peculiar to the individual, such as weakness of constitution, scrofula, lymphatic or anæmic conditions, chronic alcoholism, old age, and any depressing cause, though they have a certain predisposing power, may not unfrequently be all absent and yet the disease may be developed. 2nd. A far more potent cause of tertiary affections is absence or insufficiency of treatment in the early period of the disease. Throughout his paper Fournier insists upon the disastrous effects produced by 'expectant' or 'simple' treatment of syphilis. In attempting to distinguish between the periods of secondary and tertiary affections respectively, Fournier acknowledges the impossibility of laying down a hard and fast line between the two periods. The disease passes from the earlier to the later stages in one of two ways. In one, the phenomena gradually change from one form to the other, or the later ones appear before the earlier forms have wholly disappeared. In the other, a more habitual one, there is an interval of quiescence before the tertiary affections break out. As a general rule, tertiaries are rare before the second or third year, while the interval may be prolonged frequently for ten to twenty years; and Fournier relates a case from his own experience where the tertiary period had continued fifty-five years after infection. The general character of the tertiary period is one of full health interrupted by morbid phenomena, which have

no stated period for their appearance but may occur and recur during many years, indeed, while life lasts. When present they are scattered, even isolated or solitary, while no part of the body is exempt; their outset is insidious, their development slow, and in many latent. Their anatomical seat is the parenchyma of the tissue attacked, the deeper structures rather than the superficial part. Thus they destroy the tissue or organ in which they are developed. They set up two kinds of tissue-change: one, inflammatory fibrous increase and contraction of the parenchyma; the other, the gummy tissue peculiar to syphilis. Lastly, tertiary syphilides are almost always curable.

In establishing the diagnosis of tertiary syphilis, attention must be paid to three points: 1. Special characters; 2. Coexistence of specific affections elsewhere; 3. Previous syphilitic affections. But any of these conditions may be wanting, and render the diagnosis often dependent on two or even one of the others. With regard to the special character of the affection, unfortunately tertiary syphilitic affections more often want special characters than possess them. Most frequently, again, the affection is isolated, the sole one present. Again, the history of previous syphilis is most commonly wanting, in women as often as in one out of four or five cases. Former syphilis is often forgotten or not suspected, on account of the length of time that has elapsed, and the determination of some patients to deny any fact which casts a slur on their moral conduct. This obstinacy, combined with the social reputation of the patient, sometimes puts the questioner off his guard. All these circumstances impede the practitioner in reaching a true diagnosis.

The prognosis of tertiary syphilis is always serious, often grave, and more often fatal than is generally believed. It is influenced by position and by the condition of the patient. Nevertheless, speaking generally, tertiary affections are eminently curable [*i.e.* the lesions, not the diathesis]. Though the iodides alone, or combined with mercury, are the remedy *par excellence*, there are cases in which both these remedies fail. For example, over the inflammatory changes produced in an organ by the irritating presence of the syphilitic affection, mercury and iodine have little or no influence. In conclusion, Fournier insisted most strongly on the great importance and possibility of *preventing* tertiaries by a well-sustained and prolonged treatment of syphilis in its early stages. He attributes much of the subsequent disease to the inefficient treatment of the patient during the first two years after infection, and utters a powerful protest against the custom of withholding mercury when the early symptoms begin to abate. At this time, it should be continued steadily for several months after the patient is apparently well.

BERKELEY HILL.

PUBLIC HEALTH.

PROPOSED SANITARY LEGISLATION.

The first attempt to realise the aspirations of the Public Health party and the hopes which had been raised by the advent of the present *sanitas sanitatum* Government to power, is not very encouraging, and hardly justifies the exulting cheers with which Mr. Stansfeld's downfall was received by certain sanitary reformers.

Mr. Sclater Booth and Mr. Clare Read have introduced 'A Bill to amend and extend the Sanitary Laws.'

The first part of this measure contains 18 clauses, relating to the Public Health Act, 1872—a series of amendments, verbal and explanatory, of the provisions of that Act. It is difficult to fix on one which can be fairly called an important extension of sanitary law, or a recognition of any hitherto neglected principle of legislation. They simply supply notorious deficiencies in that Act.

Clause 5 directs that the joint action of several local authorities in the appointment of a superintending medical officer of health shall be in a manner prescribed by the Local Government Board:—thus pledging that Board to act regularly and systematically in this matter.

Another application of the principle of combination is shown in Clause 12, by which the Local Government Board is empowered to order all the riparian authorities connected with a port, to send representatives to the port authority; though it is difficult to comprehend why 'two or more' riparian authorities should be ordered to unite in electing only one representative. Several port authorities on the same coast or river may also be combined, with a new title, as a united district.

These clauses are the first distinct admission of the principle of unification, followed by combination, of local authorities.

Clause 16 gives the Local Government Board power, by provisional order, to alter, extend, or diminish the areas of local sanitary administration.

The second part relates to other Sanitary Acts.

Clauses 19, 20, and 21, are simply to fortify the provisions of existing enactments:—enabling the police officer who may act in default of the sanitary authority, under Section 16 of the 'Sanitary Act, 1866,' to recover his expenses from that authority;—enabling the Local Government Board to enforce, *by mandamus*, any order made under the celebrated 49th section of that Act; and enforcing by penalty the removal of nuisances, and the cleansing of receptacles, &c.

Under the third head—Constitution and Election of Local Board—there is little of importance. Clause 25 empowers the Local Government Board to settle, after local inquiry, disputes as to boundaries, of which, according to the evidence given before the Boundary Committee, there is an abundant crop ready for adjudication. Clause 28 also empowers that Board, on application and after inquiry, to increase or diminish the number of members of local boards.

Under the fourth head—Provisions as to the Acquisition of Property—Clause 33 makes an important addition to, and confirmation of the powers of local authorities, enabling them to purchase water-mills, dams, &c., which are often serious impediments to the improvement of the public health.

Under the fifth head, 'Borrowing Powers,' conferred by the Act of 1858, may be extended in most cases from 30 years as now, to 60 years in future. This also is an important amendment of the law; but the term of borrowing might well be further extended, for the more permanent works.

Nothing need be said about the sixth head—Audit of Accounts.

The seventh head—Bye-Laws—contains some useful additions to local powers. Clause 41 prohibits the commencement of any works of which notice,

plan, or description may have been laid before the local authority, until approved by such authority. The power of making bye-laws in regard to the walls of buildings, is extended by Clause 44 to roofs, foundations, and water spouts. By Clause 45, the lodging, and other treatment of hop-pickers, may be regulated by bye-laws; and the confirmation of regulations under the Common Lodging-Houses Act, 1851 (omitted from the Acts of 1871 and 1872) is transferred from the Secretary of State to the Local Government Board;—the powers of the Central authority, with regard to Common Lodging-Houses being also extended (Clause 47) by removing the restriction contained in Section 35 of the Sanitary Act, 1866.

Under the eighth head—'Miscellaneous,'—the most important provision is that of Clause 50, for the closing of wells and pumps which supply polluted water. Clause 51 enables the Local Government Board to declare that any hospital for the reception of infectious cases which is within a convenient distance of the district of the local authority, shall be deemed to be *within* that district. Sections 51 and 52 of the Public Health Act, 1872, which authorise the destruction of 'infectious bedding,' and which regulate the treatment of persons suffering from infectious disease on board ship, are by Clause 52, to be extended to the metropolis. By Clause 54, the provisions of the Nuisances Removal Act for England (Amendment) Act, 1863, are to extend to milk. Clause 55 empowers any justices of the peace to grant to every sanitary officer a warrant of entry and search for unsound food of all kinds. By Clause 56, there is to be a penalty of 20*l.* upon lodging-house keepers for false representation with respect to infectious disease.

These various corrections and supplements to our sanitary code are of a practical kind, and should doubtless be enacted. But they only touch the outside of much greater questions. Such imperfect legislation makes one call the more loudly for a general revision and consolidation of our many complicated sanitary laws, to which this Bill, if enacted, will make another addition, for the benefit of the lawyers.

The great *desideratum* remains unnoticed and unprovided for,—namely, the want of properly constituted authorities, of uniform jurisdiction, and of like nature and composition, in every district, whether urban or rural. Preparatory to this unification of authority, there must be a rectification of areas for statistical and administrative purposes. We are surprised that none of the recommendations, made by the Select Committee, 1873, on Boundaries of Parishes, Unions, and Counties, are to be adopted. Certainly, on this question, Mr. Stansfeld held sounder and more enlightened views than his successors in office appear to hold.

H. W. RUMSEY, M.D. (Cheltenham.)

OPHTHALMOLOGY AND OTOLOGY.

ROBERTSON ON REPOSITIO CILIORUM FOR TRICIASIS.—This operation—recommended by Celsus—has again been brought to the attention of the profession by Dr. Argyll Robertson in the *Edinburgh Medical Journal* of May. Few text-books make any mention of this simple method; and its reintroduction,

about twelve years since, is due to Dr. Snellen, of Utrecht. The following is the method of operating. A very fine curved needle has the two extremities of a very fine waxed silk ligature (or hair, as Celsus directs) passed through its eye. The needle, being firmly grasped by suitable forceps, is then passed through a narrow fold of skin, at the very margin of the lid, close to one of the inverted eyelashes. The point of introduction should be external to the point of emergence of the eyelash, but as close to it as possible; and the needle should be brought out after passing through about three-fourths of a line, or a line under the skin. The needle and ligature should be drawn through until a small loop alone remains, when, by means of a fine pair of forceps, the eyelash is passed through the loop. Traction is then made on the ligature, and the loop with the entangled eyelash is drawn through the tunnel in the skin.

KEYSER ON 132 CATARACT EXTRACTIONS.—The *Philadelphia Medical Times* for May 23 gives an abstract of a report read by Dr. Keyser at the meeting of the Pennsylvania State Medical Society, on 132 cataract extractions made by him during the last six years, on patients ranging from seventeen to eighty-two years of age. The success of these he classifies with regard to vision as follows:—86 $\frac{4}{11}$ per cent. as perfect, 6 $\frac{9}{11}$ per cent. as moderate, 3 $\frac{3}{8}$ per cent. as imperfect, and 3 $\frac{3}{8}$ per cent. as complete loss. It must, however, be noted that he considers vision to $\frac{1}{10}$ as perfect, from $\frac{1}{10}$ to $\frac{2}{20}$ as moderate, and in no case did the patient recover $\frac{20}{xx}$. Twelve of the cases were equally divided between Daviel's corneal, Pagenstecher's, Liebreich's, and Bowman's suction methods, the remaining one hundred and twenty being operated on by Von Graefe's modified linear method, the incisions being made 'in the sclerotic, beginning at the sclero-corneal junction, and the most of them brought out in the same with a large conjunctival flap, while in others the incision was brought out in the cornea close to its edge. Those brought out in the cornea did not heal so quickly, although quite as well, when there was a conjunctival flap.' Astigmatism, requiring the use of cylindrical glasses, was found in fifty-eight cases after operation.

FITZGERALD ON THE OPHTHALMOSCOPIC APPEARANCES OF THE OPTIC NERVE IN CASES OF CEREBRAL TUMOUR.—In a paper on this subject in the *Dublin Journal of Medical Science*, June, Dr. Fitzgerald relates a case of *Stauungs-papilla*, and gives a short *résumé* of the theories which have been put forward to account for this congested condition of the disc in cases of cerebral tumour. He particularly desires to correct what he considers a widely-spread but erroneous impression, 'that Von Graefe regarded the *Stauungs-papilla* as *absolutely* diagnostic of the presence of a cerebral tumour,' and points out that Graefe looked upon this condition of the disc as 'merely the expression of increased intracranial pressure.' Dr. Fitzgerald concludes his paper by insisting that, though the appearances of the disc in *Stauungs-papilla* cannot be looked upon of themselves as of any special diagnostic value, those appearances, combined with a careful study of all the symptoms in any particular case, must prove of invaluable assistance in forming a diagnosis.

BERGERON ON SPONTANEOUS IRITIS SUPERVENING IN THE COURSE OF A BLENNORRHOEA.—

In *La France Médicale*, M. Albert Bergeron relates a case which has occurred in the Hôpital de la Charité under the care of M. Gosselin, where the iris alone was affected during an attack of blennorrhagia, neither traumatic injury, rheumatism, nor syphilis being detected. He considers it an example of the monarticular rheumatic type, differing from the ordinary rheumatismal form of iritis by the latter almost invariably affecting the two eyes.

BURNETT ON MENIÈRE'S DISEASE.—In the *Nashville Journal of Medicine and Surgery* for May, Dr. Burnett relates a case of Menière's disease, or, as Knapp and other American surgeons prefer to call it, apoplectiform deafness. In this case, which Dr. Burnett considers a typical one, a single application of 'electricity' restored for several hours the hearing power of a previously 'completely' deaf ear. Unhappily, though without any assigned reason, only one application was made. He concludes that there is such a disease as Menière's disease, which is caused by a sudden extravasation of blood or serum in the auditory nervous apparatus, and in those where the range of audition is affected located in the cochlea, and considers that the vertigo of the affection is probably entirely of a reflex character, as there is 'not sufficient evidence to show that the office of the semicircular canals is to regulate the equilibrium.'

W. LAIDLAW PURVES, M.D.

DERMATOLOGY.

HILLAIRET ON LEPROSY.—M. Hillairet relates the following case from his wards in St. Louis Hospital (*L'Union Médicale*, 1874, p. 154). The patient, a Mexican, found that the great toe of the right foot had lost sensation as early as 1861, when he was twenty years old. For the next four years he was engaged in civil war, and suffered no further inconvenience; but in 1865 anaesthesia rapidly spread up to the right knee. A patch appeared on each cheek in 1868, and the patient then came to Paris and put himself under treatment. In December 1869, after five months' treatment with alkaline baths and applications of glycerine to the 'tubercles' of the cheeks, they had almost disappeared, though the leg was still insensible. He then began taking arsenic, but was immediately afterwards attacked by an outbreak of leprous nodules, which appeared on his face and body, and rapidly ulcerated. This continued from January to August 1870, and became steadily worse during the following winter, when Paris was besieged. 'At the time of the Commune there was a period of arrest, and even a slight improvement.' In June 1872 the patient entered the hospital, St. Louis, under M. Hillairet, who gave him tonic regimen and gradually destroyed the nodules with carbolic acid. On January 1, 1873, the face had again become covered with flattened nodules, which deformed the features and even invaded the tongue. Similar lesions occupied the hands and feet, but his general health continued good. In February, however, he began to vomit after each meal, and the urine was then (apparently for the first time) examined, and found to be albuminous, with a low specific gravity. Epistaxis succeeded, the temperature became low, and death ensued three weeks after the first symptoms of constitutional disturbance.

At the necropsy, an ulcerated patch was found on each side of the larynx above the vocal cords. There were extensive pleuritic adhesions, with miliary tubercles, on the right side; and the corresponding lung contained two vomicae at the apex and small masses of unsoftened tubercles. The kidneys were atrophied and granular, presenting all the characters of chronic interstitial nephritis. The liver was affected with lardaceous degeneration, as were the renal arteries, and probably the spleen. The brain, cord, and nerves were unfortunately not examined. No dropsy was observed during life, and there was an entire absence of general symptoms until the last attack, the symptoms of which, including the low temperature, may all be referred to uræmia. There were, however, no convulsions. The following are the temperatures of the last few days of life:—

| Morning. | Evening. |
|----------|----------|
| 97°34 | 95°18 |
| 97°88 | 97°52 |
| 96°08 | 95°9 |
| 96°08 | 96°8 |
| 95°18 | 95°18 |
| 95°36 | 95°54 |
| 95°54 | 95°36 |
| 95°36 | 95°36 |

MICHELSON ON TRANSFERENCE OF RINGWORM FROM A CAT.—Dr. Michelson (*Berliner Klinische Wochenschrift*, 1874, no. 11) relates the following interesting case. Three children and their father and mother were found to be affected with ringworm. It appeared first on the scalp and body of the children, and was evidently thence transferred to their parents. In seeking for the primary cause of contagion, Dr. Michelson discovered that a cat with which one of the boys had been playing was the subject of scabies; and, when the crusts were examined, beside acari and their eggs, a multitude of spores and filaments appeared, which were recognised by the writer (supported by the judgment of Professor Kœbner), as *Trichophyton tonsurans*. Pieces of the crusts from the cat were next bound on to the arms of three medical students. Itching soon followed, and became so violent that one of them took off the bandage, and cured its effects with balsam of Peru. The other two experimenters were rewarded by a patch of apparently ordinary scabies, which died away of itself in ten or twelve days from the date of inoculation. One of them showed no further effects of the experiment; but the other, some weeks later, found on the place where the crust had been applied a patch of *Tinea circinata*, which furnished specimens of the *Trichophyton tonsurans*.

The entire history (which is minutely related, and illustrated with figures of the acarus and the fungus) shows the correctness of Gerlach's conclusion, that the scabies of cats cannot be transferred to man. This does not appear, from the figure and description, to depend on a specific difference in the acarus of human and that of feline itch, but on the change of habitat. It also shows that animal parasites are very efficient carriers of epiphyta. This was well shown by the fact that scales from the patches of ringworm in the boy, which were transferred to the arm of the same person, produced no result, while the crusts from the cat succeeded. [At a recent meeting of the Société Méd. des Hôpitaux, MM. Hillairet and Besnier related cases of the transmission of *Herpes circinatus* and *Herpes tonsurans* to human beings from horses and from a calf.—*La France Méd.*, May, 1874, p. 301.]

HILLER ON ONYCHOMYCOSIS.—Dr. Hiller records the following case (*Berliner Klinische Wochenschrift*, May 18, 1874). A soldier, twenty-two years old, came to him with one thumb greatly inflamed, and the nail loosened. A large bleb was opened, and thin yellowish fluid ran out, with numerous white flakes. On microscopic examination, beside leucocytes and cells of the rete mucosum, there was found abundant branching mycelium, with undivided hyphæ, sporangia, and numerous small, bright, nucleus-like spores. The fungus was referred to *Mucor mucedo*, and had evidently been derived from the dungheaps of the regimental stables. A second superficial abscess was opened, from which only pus and spores escaped; the nail, which had become very loose, was removed, a fresh one formed, and the whole thumb soon returned to its normal condition. The man's hands had been excessively dirty, and a deep black deposit was found between his nails and the flesh, separating them more than natural, and thus forming the most favourable bed for the growth of spores. They had penetrated under the nail by this channel, and there excited the superficial but extensive inflammation. [The mould does not appear to have invaded the nail itself, as in other cases of onychomycosis proper.—*Rep.*]

NEUMANN ON ERUPTION FROM POTASSIUM BROMIDE.—Dr. Neumann (*Anzeiger der K. K. Gesellschaft der Aerzte in Wien*), publishes a case of a pustular and bulbous eruption on the scalp, cheeks forehead, and legs of a child five months old, who had been taking this drug for convulsions. The affection appeared after four drachms had been taken. Microscopical examination (apparently from the same case) showed that the hair-follicles and sebaceous glands were chiefly implicated.

P. H. PYE-SMITH, M.D.

COURRÈGES ON ALOPECIA.—In an article on alopecia published in the *Thèses de Paris*, 1874, no. 76, Dr. Courrèges states that he has demonstrated that the fungus of the *Alopecia areata*—the *Microsporon Audouinii*—is not situated, according to the statements of Gruby and Bazin, in the hair, nor even around it, but in the most superficial portions of the horny layer of the epidermis. M. Malassez has made this cryptogam a subject of special study, and presented a note regarding it to the Société de Biologie on December 27, 1873. The fall of the hair would not be due to a cryptogamic change in it, but to a vice in nutrition, induced by the presence of the vegetable parasite in the superficial parts of the epidermis. M. Courrèges therefore admits, like Gruby, Bazin, and Luiller, that alopecia is of a parasitic nature, but in an indirect manner. He rejects Hebra's theory, which makes alopecia depend on a disturbance of the organs of nutrition.

Alopecia achromatosa and *alopecia decalvans* would therefore be only two forms of the same disease. With regard to treatment, M. Courrèges prefers shaving to epilation, which is in conformity with M. Malassez's latest researches. The head should be shaved at least once a week, or even twice, and then washed with a solution of hydrochlorate of ammonia and corrosive sublimate, each one gramme, in 500 grammes of water. Sometimes M. Courrèges substitutes an ointment of 1 gramme of sulphate of mercury to 30 grammes of lard.

BROWNE ON A METHOD OF TREATING TINEA TONSURANS.—Dr. Edgar A. Browne, writing to *The*

Practitioner of May, recommends the following method of treatment as requiring no attention on the part of a nurse or parent, and needing only to be renewed at intervals of three or four days. A margin of healthy hair is to be cut quite short or shaved round the patch. A brisk rubbing with the oleum picis rectificati, or some similar hydrocarbon, is the next stage, and the reddened and saturated patch is to be thickly dusted with a powder composed of tannin, iodine, and gum arabic. This is to be moistened with a few drops of the oil, and gently but firmly pressed into the skin with the end of a small cork. The process is repeated till the whole patch is covered with a layer of paste about an inch thick, which is allowed to dry. The firm hard scab thus formed may be left undisturbed for three or four days, when it should be moistened and scraped off, and a fresh application made.

DUHRING ON PSORIASIS AND SYPHILIS SQUAMOSA.—Dr. Duhring, in a clinical lecture printed in the *Philadelphia Medical Times* (February 7, 1874), arranges the diagnostic signs between these two diseases as follows. *Age.*—Psoriasis is not uncommon in children; the scaly eruption of syphilis is almost entirely confined to adults. *Transmission.*—Psoriasis is often hereditary, but congenital syphiloderma is rarely or never of the scaly variety. *History.*—There will be generally an account of a precisely similar attack of psoriasis before, and there may be a history of a primary syphilitic lesion. *Duration.*—A tendency to relapse is characteristic of psoriasis, but a syphilide, when once thoroughly cured, rarely returns. *Symptoms.*—The general health in psoriasis is good, whereas some amount of cachexia is present in all cases of scaly syphilitic eruptions. The form of the eruption is more regular in psoriasis than in syphilis; and its edges are well-marked and sometimes raised in the latter, but fade gradually into the surrounding skin in psoriasis. Psoriasis is far more symmetrical than the syphilide; and, though no region is exempt from either, the former, as a rule, is more extensive, and seldom fails to attack the elbows and knees, while the latter may be found affecting the palms and soles alone. Itching is characteristic of psoriasis, absent or slight in syphilis. Thickening of the cutis is characteristic of a squamous syphilide, as is also the presence of papules, pustules, or any other lesions than scales. The bright colour of psoriasis, and its abundant, silvery, loose, and imbricated scales, contrast strongly with the 'lurid' hue and scanty, dirty-white, adherent scales of syphilis. A patch of psoriasis bleeds easily when the scales are removed, but one of syphilis is far less vulnerable. Moreover, the former disease is never complicated with ulceration; and the subsequent maculæ are less deep in colour, and less persistent than those of syphilis. Lastly, local treatment affects psoriasis, and has no influence on syphilis: the former is benefited by steel or arsenic, the latter by mercury or iodide of potassium.

P. H. PYE-SMITH, M.D.

PSYCHOLOGY.

SAMT ON THE PHYSICAL METHOD IN THE STUDY OF MIND.—At the Medico-Psychological Association of Berlin, held in November, 1873, and

reported in the *Berliner Wochenschrift* of 9th a discourse was given by Samt on 'The Physical Method in Psychiatry.' The psychologist, said he, studies manifestations of the mind and the brain, understanding by the former perception, ideation, and will; by the latter, the various parts of the nervous system. The proofs of this arrangement stand in two categories; the first, which comprises the proofs derived from the history of development and comparative anatomy, can only affirm a relation. Not much can be said of the history of development, for we know nothing in detail about periods of development of the mind corresponding to certain stages of development of the brain. Comparative anatomy is more satisfactory, but it has no causative significance; for, even though empirical observation declares that as we proceed higher in the animal kingdom, from the coelenterata to man, the development of the brain and the mind show an absolutely proportioned relation, still the mind might always be regarded as extracerebral, the brain being only the means of soul manifestation. In the second category come the proofs by pathology and experiment, which are stringent, and maintain a relation of causality. The demonstration depends on a general principle which may be called that of 'empirical actualism,' (*empirische Actualismus*). When the relation of brain and mind is proved as a fact, the manifestations of the latter being without exception functions of the former, the question arises, in what manner this relation occurs. Here we are in presence of the two limits fixed by Du Bois-Reymond, the second of which Samt would extend by dividing the manifestations of mind into the conscious and the unconscious, the latter of which, however, can only be motor, for unconscious perception or unconscious ideation is a nonentity. As to the unconscious phenomena of mind, he mentions that they are to be understood mechanically, but only on the presupposition that they really happen without consciousness, and he explains this point by two examples and an experiment which he borrows from Goltz, who found that a frog deprived of the cerebral convolutions contrives to avoid exactly obstacles placed in his way, and that the direction of his efforts varies according to the position of the impediment. The second example is a very complicated one, and represents a general who, in a feigned state of somnambulism, designs an ingenious plan of battle. To these examples are added the experience derived from subjective observation. The reasoning is apparently as follows. Whoever, from the actions of a certain person rendered unconscious through the action of medicines, or from those of a frog deprived of its brain (however voluntary they seem, though the individual knows nothing of them, and the frog can say nothing), maintains that they must be accompanied by consciousness, simply makes an assertion for which he can adduce no proof. But on this acceptance alone the actions cannot be understood, for he must of necessity point out the exact central mechanism, for the adaptability (conformity to ends) of an executed movement depends on consciousness alone and on a suitable apparatus; the second acceptance only of an exact mechanism of the nervous apparatus can be received, since of two views on any matter that one is the best which requires the least amount of theory. Those who maintain that every action which appears voluntary must be followed by consciousness, require, besides Samt's own acceptance (theory) another, viz., that

of consciousness. With the last two theories the debated actions are, however, scientifically incomprehensible; according to Samt's theory, they are to be understood on mechanical principles.

So far, the reasoning is purely theoretical. The lecturer now adduces a practical result which opponents cannot do. It is a known fact, that thoroughly unconscious hysterical persons move about in a co-ordinate manner, as in ascending staircases and performing other complicated movements. This shows that certain actions which seem conscious are, in part at least, without doubt unconscious, for the consciousness of these non-perceptive hysterics has no knowledge of objective signs; the apparatus itself must therefore be responsible for the management, and so the lecturer proposes a scheme for making his views plainer. The conscious phenomena of mind are not to be comprehended on mechanical principles; they constitute the record of Du Bois-Reymond's limitations. But the conscious phenomena of mind are also functions of matter. As the brain-mechanism produces ideas, perceptions, and acts, so does the man think, feel and act, and pathology proves this by the constrained (forced?) ideas, feelings and acts of the insane. He then proceeds to enumerate a third scheme regarding hallucinations of special sense, and adduces hallucinations of hearing as examples, especially in the voices heard by the insane, which afford a direct view of the course of the mechanism, the consciousness hearing the work of the machinery of the unconscious. Finally, the lecturer avoids identifying his psychic unconsciousness with that of Hartmann; his psychic unconsciousness is a brain-function, that of Hartmann is a metaphysical principle without nervous substratum.

In finishing his paper on the nature of mental diseases, Samt went on to say that he was a supporter of the view of the essential differences between diseases of the mind. There are different diseases of the mind just as there are of the lungs or other organs; and the opposite view, which makes them to be different stages of one particular brain-disorder, beginning with melancholia and ending with incoherence or dementia, is proved by observation to be false. Mania, which is the most typical form of mental disease, is quite *sui generis*, is not developed out of melancholia, and does not pass into craziness. *Folie circulaire* proves nothing as to the secondary nature of mania, it is equally a special clinical form with more or less variations; and just as little does a combination of mania and melancholia, which has been noticed in cases of periodic insanity, prove the secondary nature of melancholia. Epileptic and transitory mania must be separated from mania proper, for with it they have nothing in common, and are clinically different. Under the falsely so-called 'transitory mania' we have a moderately well characterised form of acute insanity, of favourable prognosis, complete recovery, and average duration of eight to fourteen days. He then went on to describe a form of incoherence of a *depressed* kind attended with hallucinations, which in pure cases shows a very typical range of development. It is oftenest seen in women at the climacteric. After an incubation period of more or less duration there arises hallucinations of hearing, then of feeling, smell, and taste, with delirium of persecution. Memory and objective judgment may remain intact for years, and there is no transition into an exalted form of the disease. It is generally classed under the generic term 'delusions of persecution,' but these may depend

on the most different states of brain. To it is opposed a form of an exalted kind which has also a typical beginning, and where hallucinations of sight predominate. It is a primary disease and is also of an exalted nature from the commencement, but its course is not yet quite defined. Other forms of insanity are very different from mania and incoherence, and so are the conditions present in fevers. Together with diseases of the mind those psychopathic natures are to be studied which, presenting more or less definite stages of constitution, are arranged in a long series, rising from the speechless idiot at the bottom and passing through a middle stage comprising the morally perverse man or the criminal, culminating at the summit with the intellectually-gifted individual. As regards the connection between changes in the brain-substance and mental perversions, nothing is known. We have isolated anatomical facts which enrich our positive knowledge, but explain nothing. If even we knew the definite changes for paralysis, or the exact microchemical reactions of the ganglion bodies in mania, they would not explain the paralytic and maniacal symptoms of the zone. He therefore thinks it premature to attempt to explain melancholia or mania by anæmia or hyperæmia, or by a plus or minus state of excitement of a hypothetic controlling centre.

T. CLAYE SHAW, M.D.

GRAY ON THE PATHOLOGY OF INSANITY.—Dr. John P. Gray, Superintendent of the New York State Lunatic Asylum, has for several years past been engaged in pathological investigations, and more recently in special microscopic work, and in the number of the *American Journal of Insanity* for January last gives a brief summary of some points of interest.

He states that, although the cases thus far examined may be regarded as insufficient to establish general conclusions, they go to strengthen the conviction sustained by the laws of general pathology, that insanity is a physical disease of the brain, and that the mental phenomena are symptoms; further, that the microscope, with patient and close investigation, will continue to disclose structural changes in the cerebral tissue, as marked as those heretofore unsuspected, when examinations were limited to the scalpel and naked eye; and in these investigations, when the entire range of the disease, in every stage of its progress, shall have been brought under the microscope, we may be able to solve the problem of the morbid processes denominated insanity.

Another conclusion to which these investigations would naturally lead, is, that the variety and changes in the predominant symptoms of insanity may acknowledge their cause, not so much in the variety of lesions as in the special parts of the cerebral centres which are morbidly involved in each case; or, to bring the idea within narrower limits, that emotional, ideational, and motor disturbances, have their foundation in the extent and degree to which the nerve-elements that minister to the execution of intellectual and motor acts are involved in the lesion. When the disease reaches its ultimate stage, all distinctions cease, dementia being the same closing stage of every so-called form of insanity.

NICOLSON ON AUDITORY HALLUCINATIONS.—Dr. David Nicolson, in a paper on the 'Morbid Psychology of Criminals,' (*Journal of Mental Science*, April, 1874) makes some observations on the pathology and seat of auditory hallucinations, with reference to the question whether the seat of the

disorder is in the supreme centres of the brain or in the sensory ganglia. 'If we are speaking,' he says, 'of uncorrected hallucination—hallucination as an evidence of insanity—it is impossible for us to get rid of the testimony which the supreme brain-centres themselves, as the seat of the intellectual faculties, afford as to their participation at least in the morbid process going on. But it is altogether another matter when we come to consider the probable seat of origin of the morbid action; when we come to ask ourselves whether the hallucination arose in some deranged or diseased condition of lower centres, and revealed itself through the higher; or whether any cerebral derangement, giving rise to hallucination, is confined to the higher centres.' Dr. Nicolson sees no reason why the location of the *origo mali* may not be in the higher or lower centres. Prison hallucinations are, in his opinion, examples of the former class. They arise from solitary confinement, with limitation of thought and concentration of ideas in particular directions. The treatment consists in removal to a ward where others are present, and the readiness with which the hallucination is thus cured shows that it was due to some disturbance in those higher centres of the brain immediately concerned in the intellectual processes rather than to any morbid condition in the more remote centres. But while we must accept the possibility of uncorrected hallucination having its primary morbid seat in the intellectual centres of the brain, we are not, he thinks, in a position to deny the possibility of the sensory ganglia being the primary seat of derangement. The ganglia of sensation, in common with every other part of the body, are liable to become the seat of disease, and equally liable to disturbance or derangement of function. They may be the seat of morbid sensorial impressions; these are transmitted upwards to the centres of perception and ideation, where, if they are corrected, the best possible proof, viz., that of the *sane* individual himself, is afforded that he is the subject of a deceptive sensation, which, however, he is able to dispel by the evidence of his other senses and his reason. If the morbid impression is left uncorrected and irrational behaviour comes to be indulged in, the hallucination is an evidence of insanity, but its seat of origin remains the same, *i.e.*, in the sensorium. Again, in an insane person who becomes the subject of hallucination, the pre-existence of insanity from disease of the supreme cerebral centres does not prove that those centres are likewise the primary morbid seat of the hallucination. For, if the disease have existed prior to the advent of hallucination, it is possible to conceive that the particular hallucination did not come on until the general disease had extended to and involved the ganglionic centre to which reference is made. In such a case, the particular hallucination is to be looked upon as having had its seat of origin in the morbid state of the sensory ganglia, notwithstanding the evidence of pre-existing disease of the higher centres. In other words, the seat of origin, as regards the insanity, is not necessarily the seat of origin as regards the hallucination.

The following propositions embrace the leading suggestions.

1. The hallucination may have the same morbid seat as the insanity, and may arise before, with, or after the insanity, *i.e.* its primary and sole seat may be in the higher or intellectual centres of the brain; it may be purely ideational.

2. The hallucination may differ from the insanity (of intellectual centres) in its seat of origin; it may take its rise in the sensory ganglia

a. *Prior to the insanity*: corrected hallucinations becoming persistent, and leading up to insanity;

b. *Subsequently to the insanity*: the ganglia becoming involved, secondarily, in the morbid process; thereafter giving forth morbid impressions which are left uncorrected;

c. *Simultaneously with the insanity*: improbable but not impossible.

The utility of investigation into the primary morbid seat of hallucination bears upon the treatment, in addition to the pathological interest of the question.

WILLIAMS ON PHOSPHORUS IN MELANCHOLIA.—Dr. S. W. D. Williams, the Superintendent of the Sussex Asylum, gives a *résumé* of half-a-dozen cases of melancholia treated by phosphorus (*Journal of Mental Science*, April, 1874.) The medicine used was in the form of the pills prepared by Messrs. Kirby and Co., which are stated to contain each the thirtieth part of a grain of pure phosphorus. The first case was a male, aged fifty-one, agricultural labourer, no hereditary taint, but father given to drinking; admitted September 6, 1873. The attack was pure melancholia, uncomplicated with delusions, and had been coming on for twelve months. Sleeplessness was at first treated by chloral, which was changed for opium and chloric ether. He then began to refuse his food, and on November 12 was ordered one phosphorus pill night and morning. In a few days the depression was less, and in a month had quite left him. The second case was that of a female aged thirty, who recovered from two attacks of melancholia, relapsing almost immediately. She was then put on phosphorus: the third attack only lasted twenty-seven days, and she has now (two months) remained cheerful and well. The third case was also a female, aged fifty-four. The disorder was hereditary, and had lasted five months. She had a constant desire to commit suicide, but no delusion. Phosphorus was given, and persevered with for seven weeks, without any benefit. Opium was then given, with immediate result, and recovery took place. In the fourth case, a female aged thirty-three with a strong suicidal and homicidal impulse, phosphorus was prescribed after she had taken iron and cod-liver oil. She improved so as to be able to employ herself in the laundry, but relapsed, and refused to take the pills. Since then she had become worse. The fifth case was a female aged twenty-seven, who was admitted in an attack which was said to have lasted ten days. Chloral and opium were tried without effect. After taking phosphorus a week she had much improved, and there was every prospect of recovery. The last case was a male patient, aged thirty-nine, who had been intemperate both in smoking and drinking. He suffered from acute mania, which had supervened upon symptoms of locomotor ataxy. The latter increased, but the mania passed off, and was followed by melancholia. Phosphorus was given, and the mental symptoms disappeared, but there was no improvement in the locomotor ataxy.

Dr. Williams remarks that in all these patients there was noticed within a few days of beginning the phosphorus a peculiar coated state of the tongue, not unlike the silvery tongue which follows the prolonged use of arsenic, as stated by Dr. Eames. No toxic or other disagreeable symptoms were observed.

WILKES ON INSANITY DEPENDENT ON SYPHILIS.—Dr. Wilks, after narrating the particulars of two cases of insanity dependent on syphilis (*Journal of Mental Science*, April, 1874), makes some observations upon this question. He is of opinion that the mental symptoms denote no more than the presence of a local source of irritation, and do not in their character point to any new or special cause requiring another form of insanity styled 'syphilitic,' to be added to our nomenclature. The well known local morbid conditions in the brain known as 'gummata,' are efficient causes, and therefore no new ones need be sought. There are also sufficient general reasons for doubting the existence of some other more diffused pathological state of the cerebrum proper, which can be attributed to syphilis. The word disease is so commonly used in two different senses, that it is important we should more distinctly define its meaning. At one time a wide and theoretical signification is given to it, and at another time it bears only a precise pathological interpretation. If we take affections of the cerebro-spinal system we find that they fall into two great classes, according as they are organic or dynamic, or as they show on *post mortem* dissection actual structural alterations to the eye or not, the word 'structural' being also very limited in meaning. This division is not only pathological but clinical, and that it is true is seen in the various nomenclatures of insanity which are constantly made. Confusion has arisen from associating together a theoretical or imaginary morbid anatomy, and that which is actually discovered by *post mortem* examination, forgetting that morbid anatomy in our present state of knowledge is almost synonymous with destructive anatomy. All which we recognise is decay and destruction, and if those latter terms were used when we speak of pathological alteration the discussion would be much simplified. It is idle to say that in all cases of insanity, as in all other disturbed functions of the body, there must be some material change in the organs. Every one admits this, and when we say that a diseased mind means a diseased brain, we are uttering a truism founded on no known fact and leading to none. The statement leads to confusion, for it confounds the known with the unknown, and may tempt us to associate under the name of disease two opposite conditions; for the use of the term 'disease' in the general sense is not an expansion of the known, being intended to signify a departure from health in an upward and downward direction, whereas in the precise and known sense it means only a change in the downward direction. In the former or theoretical sense, meaning any departure from health, it might advantageously be discarded from use, whilst it cannot be too distinctly stated that disease of an organ, in our present state of knowledge, signifies destruction of that organ. Morbid changes are destructive changes, and correspond with loss of function. Morbid anatomy has hitherto done little more than show us this. As regards the cerebro-spinal centres, when we speak of disease we mean either the evidence of destruction, or of morbid changes which lead to destruction. This, of course, means loss of function; therefore, whatever our eyes or microscope have hitherto discovered in the brain or spinal cord implies dementia or paralysis, or an approach to these conditions. We should never suspect that there had existed mania, chorea, epilepsy or tetanus; and one cannot well see how symptoms showing an exalted activity, or activity in any

form, could be associated with the destruction of the organ on which the function depends. It may be true that disease in the neighbourhood of the centres, exciting them to over-activity, may be found, but this is not disease of the organs themselves. As regards the brain and spinal cord, Dr. Wilks is not aware that any other changes are known but those which lead to destruction, and are associated with loss of function. All analogies, as well as facts, lead us to think that nothing coming under the denomination of morbid anatomy can be looked for in cases of mania, epilepsy, chorea, and similar affections. If it were not so, and we had any inkling of the peculiar state of the cerebral substance in these diseases, we might know in what manner all our brains differed from the healthy standard; but none of us would expect that the person who was somewhat eccentric in his habits had such a peculiar quality of brain that the eye could discover it, much less that the differences were of that kind which are recognised by the pathological anatomist. If this be so, there is no reason why in another person, whose eccentricity has reached that further stage which obliges him to be secluded in an asylum all his life, the brain should present any morbid peculiarities. To take, therefore, a number of cases in an asylum, and arrange them on a supposed pathological basis, can lead to nothing; the nomenclature should be wholly clinical, and this done, the pathological differences would fall into their right places.

G. FIELDING BLANDFORD, M.D.

MISCELLANY.

THE SELECT COMMITTEE ON ADULTERATION will, we believe, immediately present their report; and it is understood that, notwithstanding the late period of the session, the Government will favour an attempt to procure immediate legislation to remedy some of the defects in the existing Adulteration Act.

THE FLOWER MISSION.—This pleasing method of showing sympathy with those of our fellow-creatures who are less fortunate than ourselves, both in the gifts of fortune and of health, has made its way across the Atlantic. We learn that a number of the most charitable ladies in Cincinnati have associated themselves into a society for the purpose of distributing flowers to the sick poor, in the hospitals and their own homes. Few sick people are insensible to the beauty and fragrance of flowers; and even of those few, but a very small number would not be gratified by this evidence of a desire to in some measure alleviate the pressure of sufferings which, but too frequently, cannot be removed.

THE FRUGAL SWISS.—Many persons will learn with some astonishment that intemperance is as great a scourge in Switzerland as in many other countries. The Swiss are not great smokers, and the quality of their tobacco perhaps does not tempt to the indulgence of the habit, but the consumption of wine in the playground of Europe, and the consequent drunkenness, are said to be enormous. M. Merille de Colleville, corresponding member of the French Temperance Society, asserts on information derived from a medical man in Jura, that the majority of the male population of Switzerland die before they have attained their fiftieth year, from the effects of drunkenness. Statistical returns show that the average consumption per head of the Swiss is sixty litres per annum of wine only; without taking into consideration the cider, beer, and other fermented and distilled liquors which they are in the habit of drinking.

AMUSSAT'S PLAN FOR THE ABLATION OF TUMOURS BY MEANS OF THE THERMIC GALVANO-CAUSTIC PROCESS.—Since 1852, M. Amussat has employed several plans for the ablation of tumours by means of the thermic galvano-cautery. He first pediculated them with steel grooves, also intended to direct the course of the platinum wire; at a later stage he removed them with the galvanic *sécateur*; then with the platinum bistoury. Ablation with the *sécateur* is one of the most simple plans of operation; and the one to which M. Amussat generally has recourse. But when the tumours do not pediculate well, the thread slips, and the section is not satisfactorily performed. To obviate this inconvenience, M. Amussat places one or more ivory stems in the plane of the section, below which he makes the end of the thread pass before introducing them into the *sécateur*, and thus makes certain of the regularity of its action. In the case of a lady who had an ulcerated tumour in the internal portion of the mammary gland, one ivory stem was enough to guide the thread, and allow a very clean section of the tumour, without the least flow of blood. This very simple plan is applicable to tumours of all kinds which do not pediculate sufficiently.

GOOD NEWS FOR BATHERS.—M. Gosselin has invented a new safety swimming apparatus, which has been tried with successful results in Paris. This ingenious apparatus consists principally of an India-rubber pneumatic tube, which, starting from the top of the chest, passes under the left shoulder, down the spine as far as the loins, and then divides into two branches, which are rolled round and round the thighs as far as the knees. Some smaller tubes are joined on to the tube which goes down the back, and meet on the chest, following the lines of the ribs. All these tubes are enclosed in a double casing of flannel, which forms a shirt, buttoning in front. An opening at the upper part of the tube, closed by a copper button, serves to inflate the apparatus. This apparatus can be used for bathing, or in case of shipwreck. It is only necessary to open the aperture at the neck, and to blow into it; the loss of gas is said to be so extremely small that one inflation will last a whole day. To render the apparatus more complete for 'those who go down to the sea in great ships,' M. Gosselin has invented a buoy to accompany the swimming apparatus, which will hold provisions or valuables.

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The London Medical Record.

WEDNESDAY, JULY 8, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

LECTURE UPON THE GENERAL THERAPEUTICS OF THE NERVOUS SYSTEM. BY E. C. SEGUIN, M.D.*

(Concluded from page 399.)

CLASS B.

Means which affect the Substance of the Nervous Centres.

I. Agents increasing action of nervous centres.—Excitants.

By nervous excitants I understand such means and medicines as produce (or can produce) an immediate stimulant effect upon the nervous centres, independently of any corresponding increase in vascularity. The certainty (specificity?) and rapidity of their action distinguish these medicines from tonics.

- | | | |
|-------------------------|---|--|
| A—Cerebral excitants | { | Alcohol, embracing wines, brandies, &c., Cannabis Indica, Belladonna, Opium, Ether, &c., Intellection, Emotional Influences. |
| B—Spinal excitants | { | Strychnia, Brucia, Quinia, Cantharides, Exercise (active and passive). |

A.—CEREBRAL EXCITANTS.—It is very probable that alcohol acts upon the tissue of the brain and superior motor centres, as well as upon the circulation. I have already referred to the dosing of alcoholic drinks, and would only add that for the present purpose small quantities often suffice. In order to secure uniformity in the dosing of alcoholic stimulants, I should be in favour of using diluted alcohol instead of wines or brandy or whiskey. The only obstacles to the adoption of this practice are the prejudice existing against alcohol, and the fact that some stomachs bear wines and beer better than spirit.

Cannabis Indica has been used in cases of melancholia and acute dementia, and in various neuralgic states. Its specific effect is to excite the imagination. A sort of delirium is produced which, in most cases, is not accompanied by absolute unconsciousness, although the patient has the most extraordinary fancies, hallucinations, and delusions. It is this power of stimulating the imagination which has placed it among the remedies to be administered in apathetic cases. The success of the remedy, however, has not quite equalled the anticipations of theory. In cases of cerebro-spinal malnutrition (migraine, etc.) its influence is beneficial.

Belladonna and opium are both stimulating to the brain when given in small doses, increasing intellection and producing hallucinations. When given in large doses they produce, besides, an after-effect of depression. It is only upon some few individuals that this peculiar effect of belladonna is manifested;

and many patients can take this remedy for a long time without complaining of any hallucinations or excitation of the imagination.

One of the dangers of administering opium is the temptation to continued indulgence in the use of the remedy for the sake of the intoxication which it produces. I would ask you always to bear this danger in mind, and to consider the responsibility attaching to the giving of opium as not ended until you are satisfied that your patient no longer uses the medicine. After treating a neuralgia, or other painful affection, with opium internally, or with hypodermic injections, you are to withdraw the narcotic very gradually—to wean your patient, as it were. I cannot conceive of a much greater cause of sorrow for a medical man, than to have been the cause of the enslaving of a human being by the opium habit.

Ether produces intoxication which is often very violent, when given by inhalation for purposes of anæsthesia. It is not ordinarily employed as a cerebral excitant.

Emotional excitement is not sufficiently employed as a means for affecting the nervous centres. It is seldom applicable where organic disease is present, but is more especially indicated where the mind is absorbed in contemplation of delusions, and in hypochondriacal and hysterical cases.

Cases of hysterical paralysis have been cured by an alarm of fire, or some other immediate danger. The pleasurable emotion of hope is very powerful, and its use makes possible the success of various quackish methods. In legitimate practice, we should, I think, make greater use (within the bounds of truthfulness) of the potent emotions of hope and faith.

Many cases of melancholia have been benefited in a remarkable manner by getting them interested in some matter, either of love, or affection, or emulation. There are patients who have a certain amount of dementia, produced by the presence of some convulsive disease, such as epilepsy, chorea, &c. In these cases intellectual exercise is to be recommended and insisted upon: some intellectual excitement should be daily enforced.

B.—SPINAL EXCITANTS.—Nux vomica, strychnia, and brucia are medicines which affect in an almost specific manner the motor parts of the spinal axis, stimulating it primarily. The result of over-doses of these remedies is spasm of muscles supplied by spinal nerves. In small doses these drugs act upon the same parts slowly, and improve their nutrition. The indication for the use of strychnia, etc., is the existence of simple exhaustion of the nervous centres, of spasm due to weakness and anæmia, of paralysis (inhibitory or reflex) not due to inflammation of the spinal centre.

We also make use of these remedies in some cases of functional nervous disorders. They are beneficial in cases of chorea and epilepsy, the morbid states grouped together under the name of 'spinal irritation.' In many of these cases the remedy (strychnia) should be given in the manner long ago pointed out by Brown-Séquard, that is, in doses necessary to obtain its physiological effects.

Bearing in mind that females are much more susceptible to the influence of these drugs than males, you should commence the giving of strychnia by doses of 1-40 or 1-32 grain, increasing rapidly to 1-16 or 1-12 grain three times a day for adults. There is not the same ratio of susceptibility to the influence of this remedy, with regard to age, as is seen in con-

* From *The New York Medical Record*.

nection with opium and some other remedies, children bearing large doses well. Nux vomica may be administered in 1-4 or 1-3 grain doses thrice a day, and the doses may be progressively increased.

It is better to use strychnia in solution. If it be given in pill, you will run the risk of the drug not having been carefully divided in the preparation of the pills; and the additional danger, which is much more likely to happen, that the pills will not be dissolved in the alimentary canal until an accumulation of them has taken place, which will develop results most undesirable. The necessity of using an acid to properly effect a solution of strychnia permits us to use diluted phosphoric acid, which is itself a serviceable remedy in the treatment of nervous affections; or we may use the various acid phosphates which are now offered to us in elegant preparations by druggists.

In cases of paralysis strychnia may be used hypodermically, with benefit, 1-40 to 1-10 grain being injected once a day, or once every other day. For this purpose I would recommend Barwell's solution at half strength, one minim of which contains 1-50 grain of strychnia.

Quinia sometimes acts in a manner which entitles it to a place in this class of remedies. There has been considerable doubt as to whether quinia affects the nervous system at all. There are, however, good reasons for believing that the phenomena of intermittent fever are of spinal origin. Quinia cures all forms of this disease almost with certainty. Another reason for believing that quinia affects the nervous centres is the fact that its administration aggravates spinal disease. According to Brown-Séquard, it acts as a poison to epileptics, and this effect will allow of only one explanation, namely, that the motor centres concerned in the production of the paroxysm are excited and rendered more susceptible by this remedy. Lastly, we have the general tonic effects of quinia, which cannot be denied. Quinia will also stimulate the cerebrum, as is shown by the fact that intellectual exertion is more easy and free after its use. Dr. W. H. Draper, of this city, has given small doses of the medicine to two well-known clergymen, with the result of restoring their power of extemporaneous speaking.

Cantharides excites the spinal cord, and seems to act more particularly upon its lower portion, manifesting its action by the development of symptoms especially connected with the genito-urinary apparatus. It is useful in cases of bladder paresis, of impotency, or simple genital inertia.

Exercise, both active and passive, is indicated in conditions of paralysis or paresis, or in simple spinal debility. Much of the passive exercise we make use of is obtained by means of electricity, which will be separately considered. Exercise should never be pushed to exhaustion; and I would have you bear in mind that exertion more easily produces exhaustion in the subjects of nervous diseases, and in the insane especially.

LOSSEN ON THE MECHANISM OF HERNIAL STRANGULATION.

Dr. Hermann Lossen (*Centralblatt für Chirurgie*, no. 4, 1874) states, that 'for the reduction of those cases of hernia in which, from inflammatory swelling, a protruding intestine has so much increased in volume that it cannot be pressed back through the

same aperture by which it protruded, there exist two rival theories. Roser's valve theory, and Scarpa and Busch's theory of pinching of the intestinal canal. To decide whether either of these be correct, and if so, which is the more so, I repeated Busch's experiments with fresh pig's gut; but, instead of water, I used melted wax which, on cooling, became a solid mass. The hernial apertures were represented by holes bored through the lid of a cigar box, through which a finger might pass. The casts of the loops after removal of the artificial hernial rings were now embedded in wax of another colour, and vertical sections made through them. In the same fashion a number of loops inflated with air were artificially strangulated and then dried.'

The following results are demonstrated by these preparations and experiments.

1. At the moment when the wax, or air, or, in the living gut, the faecal matter, enters the afferent end, the efferent portion of the gut, at the level of the hernial aperture, is pressed together, and by the constantly increasing pressure is finally completely closed.

2. This being accomplished, no pressure, however great, coming from above, will re-open the distal end of the gut.

3. The pinching (*Abknickung*) of the intestine, which is principally referred to the opposed folds of mesentery, is not the cause, but the consequence, of this closure.

4. The afferent end is never closed, which appears to contradict the hydrostatic law that in a closed space lateral pressure acts equally in all directions, and perpendicularly to the surface. According to this law, the pressure in a strangulated loop must exist up to the level of the hernial ring; and above it, in the afferent piece of intestine, a diminution or increase of pressure must manifest itself equally in all directions.

This may be demonstrated with extreme facility by means of a manometer attached to the afferent end of the artificially incarcerated loop of intestine. It may be shown in this manner, beyond all doubt, that in the living intestine the whole column of excrement presses upon the contents of the bowel in the strangulated loop. Therefore the pressure on the sides of the loop will depend upon the height and length of this column, and upon the resistance the intestine offers to the pushing back of the faecal contents. The height of this column may become considerable by reason of the long continuance of the strangulation. During this time the pressure constantly augments, but it possibly may be reduced by severe faecal vomiting. The impediments arising from friction are the most important. These, from the very outset, are in inverse proportion to the transverse section of the hernial aperture; they depend further upon the viscosity of the contents of the bowel, upon the number of 'pinchings' of the intestine occasioned by the gradual swelling of the convolutions of the bowel above, and also upon the contractile force of the pylorus and of the ileo-caecal valve. They increase with the increasing peristaltic motion and swelling of the intestinal coverings, in consequence of which the afferent end may ultimately assume the minimum transverse section.

The author's observations and experiments show how great the lateral pressure upon the loop may become. It is manifest that the maximum of lateral pressure immediately above the hernial aperture must be attained at the time when that pressure equals the sum of the resistance due to impediments in the

whole upper tract of the bowel. From this moment must commence a backward motion of the contents of the bowel, the fluid particles flowing back in the axis of the canal, whilst along the walls the peristaltic influence will urge the matter forward. In the strangulated loop these movements are reversed, and maintain the equipoise. Under these circumstances the pressure does not further increase.

In the living subject the resistance is much greater than in the dead, in consequence of the peristaltic action, the viscid nature of the bowel contents, and the smaller size of the hernial aperture.

The manometer shows that all species of direct pressure upon the tumour increases the tension, and aggravates rather than improves the condition of affairs. Neither Roser's nor Busch's theory explains this. It is the lateral pressure at the orifice of the sac which alone prevents reposition.

A rational taxis then will renounce attempting any alteration at the afferent end. The efferent end is the one to be opened. This is to be effected, Dr. Lossen says, as I am in a position by the manometric experiment to prove, by pressing the loop of intestine towards the side of the afferent end. The efferent end is by this means opened, and the loop partially empties itself, then a slight pressure upon the hernial swelling is sufficient to effect reduction.

Seeing that no practical diagnostic means are known whereby it can be accurately ascertained at what side, the right or left, the upper or lower, the efferent end may lie, the author recommends that sideward movements of the hernial swelling be carried circularly round. If this end be not attainable, an external herniotomy may be made, and then similar manipulations again tried before incision of the ring.

From the preceding it is also clear that, in the internal treatment, laxatives must not be administered, and that large doses of opium are to be commended immediately after the occurrence of strangulation. The peristaltic action will be thereby lessened, and thus one provocative of lateral pressure eliminated.

[The reporter had the gratification of seeing Dr. Lossen's striking and conclusive experiments at the late Surgical Congress in Berlin, and he has since repeated some of them himself. The attempt to draw down a strangulated hernia, which is sometimes successful in effecting reduction, probably is so by thus opening up the distal end of the strangulated loop. The experiments of Dr. Lossen are simple, and easy of execution by anybody who will procure a piece of intestine, cut a half-inch round hole in a cigar-box, and provide himself with the means of inflating the gut with air or fluid. The subject is one of very great interest.—*Rep.*]

WILLIAM MAC CORMAC.

BROWN-SÉQUARD ON THE CEREBRAL POWER IN MAN.

The last Tonar Lecture was delivered by Dr. Brown-Séquard, at Washington, April 22.

According to the report in the *Medical and Surgical Reporter*, he commenced by saying that he hoped that his views, being somewhat novel, would command attention. The facts on which he would dwell were new, probably would not be generally accepted, and, perhaps, would not be easily understood by those not familiar with medicine.

Have we two brains? and, if so, why not educate both? The views of science upon this subject were different from his. The left side of the body was the side affording volition to the brain, and, *vice versa*, the right side of the brain afforded volition to the body. Eminent authorities had declared that either side of the brain was competent for this purpose. But we use only one side, and, therefore, leave out of account one-half of brain-matter. We owe due education to both sides of the brain, or rather, to the two brains.

As to intelligence, the eminent authorities he had cited established the fact that either side of the brain was competent for full development of the faculties. There were many persons of two minds, because they were never able to make up their minds. Some men claimed to be rational while they were insane. There were many cases that showed clearly that there were two brains. He had known a boy in London that manifestly had two brains, whose peculiarities he described. He would fall into a comatose state, and suddenly open his eyes brightly, inquiring of his mother why he was not introduced to the gentleman who was present while he was asleep. Again, the lecturer saw him when the boy recognised him. He had two mental lives. He knew nothing of what occurred in his sleeping condition, when fully awake; and when in the latter condition he knew what had occurred when in the former. The lecturer had seen three cases of this kind.

As regards faculty of speech, the fact that we had two brains was not so easily proved. The loss of the faculty of expression depends upon disease of the left side of the brain; and this proves that the right side is distinct.

As regards sight, a theory has been put forth by a celebrated physician of London, that the right side of the base of the brain is the centre of sight. The inner half of the right eye and the outer half of the left eye have the base of the brain as the centre. A disease in the left side of the brain, where the optic nerve touches, would, therefore, affect only one-half of the brain. Notable cases were given in which parties had seen but one-half of certain objects that they gazed upon. If the disease exist only in the left side of the base of the brain, only one-half of the eye will be affected. So there are many cases that go to sustain the philosophers. But we do not accept conclusions unless theory be thoroughly supported.

There were three series of facts, but one would be enough to show that the theory should be rejected. Disease of the brain, where the optic nerve touches, would not be sufficient to cause loss of sight. One side of the brain would be sufficient to sustain sight. An alteration in any portion of the nervous system, acting upon other parts, can produce disease in that part. Injury to the spinal cord would produce loss of sight on either side. There was nothing more common than the loss of sight temporarily in children who suffered from worms in the stomach. An injury in one-half of the brain can exist without producing loss of sight. Either half of the brain may, therefore, serve to sustain sight.

As to the voluntary movements, these depended upon the action of the body. Yet there were many small muscles which were not affected in cases of paralysis. There were cases on record in which it was shown that the lower lobe of the brain could be destroyed without affecting these voluntary movements. There were several such cases. We must, therefore, look on one-half of the brain as being

sufficient to sustain voluntary movements on both sides of the body. An irritation in any part of the brain may affect any part of the body, and an irritation in any part of the body can produce paralysis in another part. The irritation could also act upon remote parts. This shows that the power of will does not control the entire action of the body. When paralysis occurs, it depends upon irritation.

The same reasoning applies to sensation. There were thousands of cases affecting the brain that did not affect the feeling. Passing these facts in review, we find vast differences owing to the fact that one-half of the brain was developed for certain things, and the other half for other things. To the left side of the brain belonged the faculty of expressing ourselves by speech. Articulation depended in great measure upon the left side of the brain. Difficulties in the mechanical point of speech were more frequently found when the left side of the brain was diseased. It was the mental part that was lost, and not the mere mechanical action. The left side of the brain was also the motive power of gesture. When the left side was diseased, patients lost the power of gesticulation.

As regards writing, it was lost more frequently in diseases of the left side of the brain. The right arm was paralysed by diseases of this side. Many thus diseased could not write from memory, although they could use their fingers and copy. In those cases, it sometimes occurred that persons could not write at all.

Intelligence depends more upon the healthfulness of the left side than of the right side of the brain. The right side of the brain in some cases has the power of the left, if properly developed. This serves to hysterical developments, and to nutrition of the body. One, the left, applies to mental; the other, to the natural life.

The right side of the brain operates upon the limbs in cases of paralysis and other diseases; also upon disturbances in the lungs, liver, and other parts. Hysterical and emotional symptoms are more common in cases of disease of the right side of the brain; out of 120 cases of paralysis that came under the lecturer's observation, there were 96 caused by disease of the right side. An alteration of the retina of the eye will come more frequently from diseases of this side of the brain. Out of 69 cases of convulsions of the eye, 47 were due to disease of the right side. Death occurs much more frequently by disease of the right side of the brain, and in cases where patients do not die it will produce more extensive and enduring paralysis.

All this shows, not that the two sides of the brain differed originally, but that there were different developments of each. The left side of the brain was much larger than the right side. If a person went frequently to the same hatter he would find that his hat had from time to time to be enlarged. There was no question that the brain grew. By studying a particular subject the person became more proficient, and the brain was more fully developed.

There was no doubt that the left side of the brain predominated in our system. Our being right-handed showed it. There was no population in the world that was not right-handed. The right hand of the body was mostly used. Left-handed individuals used the right side of the brain, showing the connection between these things.

There was primitively a difference between the two brains. In children, convulsions were sooner de-

veloped in the left than in the right side of the brain. This was attributable to excess of blood in the left side. Parrots roosted on the right legs, and their talking power came from the left side of the head.

There were four vital points to be considered. The first was that asphyxia was connected with the left side of the brain in persons that were right-handed, and with the right side in those that were left-handed. The second point was that children who were first learning to talk, if disease came in the left side of the brain, learned to talk just as well with the right side of the brain. Though losing half the brain, they got along just as well.

This proved that the right side could be educated, with the left hand for execution. The third point was, that four out of every hundred left-handed persons learned to write with the left hand; therefore, the left side of the brain, even with persons left-handed, could be educated better than the right side. The fourth point was that the leg was rarely so much affected by paralysis as the arm. He, however, would pass over this argument, as it could only be understood by medical men.

If the lecturer had established that we had two brains, then they should be developed. If we could develop the legs and the arms of both sides, we could develop both sides of the brain. If we gave as much attention to the left side of the body as we do to the right side, we would fully develop our two brains. The important point, therefore, would be to make children use both sides of the body—alternately using the right and left arm and the right and left leg equally. There would be no difficulty in thus training children to full development.

Even adults who had lost speech by disease of the left side of the brain could regain the power by cultivating the right side. In gesture, persons who had lost the use of the right arm could be trained to use the left. If children were thus trained, we would have a sturdier and healthier race, both mentally and physically.

EPIDEMICS OF CHOLERA IN FRANCE.

Apropos of the present sittings of the International Sanitary Conference, we take from the *Medico-Chirurgical Review* an excellent although rather long *résumé* of the Report on Epidemics of Cholera in France,* in 1832, 1849, 1855, and 1865.

The Academy of Medicine having appointed a committee of its members to investigate cholera, a number of reports were submitted to that committee on the epidemics which at various times have visited the country. From them an able report was drawn up by M. Barth; but for our present purpose it will be sufficient to notice only some of the conclusions at which an endeavour has been made to arrive—for it must be confessed that few, if any, have actually been reached.

France has been visited by four great epidemics of cholera, besides some partial explosions, which seem to have been appendices to them. Thus there were, (1) the epidemic of 1832, followed by a short re-appearance, in 1834, on the shores of the Mediterranean; (2) that of 1849; (3) that of 1854, which began in November, 1853, finished in January, but

* *Rapport sur les Épidémies du Choléra-Morbus qui ont régnés en France pendant les années 1854 et 1855.* Par M. Barth, au nom d'un Commission, &c. &c. Paris: P. Masson, Éditeur, 17, Place de l'École de Médecine, 1874.

recurred in March following, and did not disappear till 1855; and (4) that of 1865, which broke out in June, and continued throughout that year and the following, not disappearing till 1867.

With regard to direction, those of 1832, 1849, and 1854 invaded the north of France, advanced westward, ending in the department farthest in that direction. That of 1865, on the contrary, appeared on the French shores of the Mediterranean, extended northwards, and reached the remote parts of Brittany and Normandy. The epidemic of 1832 broke out in Paris with great violence in the latter days of March, ravaged several districts like a hurricane, attacked in succession 56 departments, ending the same year, after destroying 110,000 to 120,000 persons. That of 1849 also appeared in the end of March. It for a time was restricted to the parts immediately around Paris. It then attacked the city with a violence hardly less than that of 1832; ravaged 57 departments, and disappeared before the end of the year, having caused 100,000 to 110,000 deaths. The epidemic of 1854, on the contrary, began at the end of October, 1853, appeared to diminish soon afterwards, rekindled in March, having Paris for its principal theatre. Thence it extended over 70 departments, and ended the following year, after having destroyed more than 140,000 victims. That of 1865 appeared in June, prevailed for some time at Marseilles and Toulon; some months afterwards it appeared in Paris, where it lighted up in the following summer, causing at the same time cruel ravages in Amiens. It continued throughout the winter in the north-east of France, and was not extinguished till the end of 1867, having visited fewer departments and caused much less mortality than either of the preceding epidemics. Thus, while the epidemic of 1854 had a shorter period of duration, and caused more victims than either of the two preceding invasions, that of 1865, slower in the progress of its movement, continued longer, yet caused less mortality than either of the others.

In the two first epidemics the northern part of France principally suffered. Of 56 departments invaded in 1832, 52 only were so also in 1849. In 1854 the epidemic had a greater extent; it produced great mortality in Paris, and stretched thence to the Alps and the shores of the Mediterranean. Of 70 departments invaded by it, 54 had been previously ravaged by one or two epidemics, and of 16 respected in 1854, six had been previously visited by the disease. At the end of that year only nine departments had remained unvisited during the several epidemics. Of these one was slightly visited in 1855; the eight others preserved their immunity during the invasion of 1865-6. Thus, certain regions were visited by all the epidemics; others were visited by one or more, while a few have continued exempt from all. As a rule, the districts most spared were those in the centre of France, and most elevated above sea level; on the contrary, those most densely inhabited and of inconsiderable elevation, suffered most. In this, however, there is nothing either absolute or constant. Thus, in 1854, the epidemic was in sixteen departments more fatal than in that of the Seine. Amiens, previously spared, suffered greatly in 1866; Rouen was exempted in 1854, and Lyons was only slightly visited by any of the epidemics. For a time explanation of this relative immunity was believed to exist in conditions connected with the nature of the soil. The exemption of the regions in the north-east, in 1832 and 1839, was attributed to

the existence of sandstone of the Vosges; yet that region was mostly dealt with in 1854. In a similar manner, parts of an arrondissement or canton spared at one time, have been ravaged at another; while others, ravaged by the early epidemics, were exempted by subsequent ones, although they continued to rage around them.

In some places the epidemics of 1854 and 1865 were more distinctly preceded by derangement of the intestines than those of 1849 and 1832. Such derangement was by one set of observers looked upon as premonitory of the epidemic; by others, as independent of it, and only proceeding from ordinary causes incidental to the heat of summer; by some, as due to fear of the epidemic. In many localities, however, the epidemic suddenly appeared while the state of the public health had till then remained satisfactory.

In all the epidemics the disease showed itself in the forms of cholera and confirmed cholera. The affection becoming developed in a person arriving in a healthy district from one infected, seemed to have a period of incubation, varying in length from one to four days. Whether in the form of cholera or cholera, the attack for the most part occurred at night; this circumstance being variously attributed to the process of digestion after a heavy meal, to the body being at rest, and to the non-renewal of fresh air around the person. Sometimes the attack was sudden and severe, death taking place in a few hours; more frequently it was slower, being preceded during some hours or days by diarrhoea,—an indication of great importance when it does occur, as treatment employed in this stage often checks the further development of the disease, and consequent mortality by it. Diarrhoea is so constant a symptom, that its absence, recorded by some authors in cases of what they called *dry cholera*, is denied by the majority, or looked upon as an error of diagnosis. For the most part it is the principal indication of the disease, and that which first appears; being followed in their turn by vomiting, cramps, cyanosis, failing of the pulse, coldness of the extremities, alteration of the voice, and suppression of urine. All these indications characterise the several epidemics, presenting only some slight modifications here and there, as less abundant dejections, less violence of cramps, less cyanosis, and so on. In the epidemic of 1854, the dejections contained more lumbrici than in any of the others, these entozoa, besides being thus evacuated, appearing sometimes in the matters vomited. The appearance of characteristic complications seemed less sudden in the epidemics of 1854 and 1865, in some places, than in those preceding; in others they were more so, and progress of the disease to death in many more rapid. In some marshy districts the disease presented some characters of intermittence more or less marked. In some instances, in all epidemics, the disease did not advance beyond the state of cholera, convalescence more or less rapid taking place from it. In other instances diarrhoea, nausea or vomiting, cramps, and the other characteristic symptoms, were present in inconsiderable severity (*cholera léger*); but more frequently there were repeated evacuations of serous fluid, succeeded by violent and painful cramps, great coldness, alteration of expression, voice sunken, and pulse imperceptible (*cholera grave*), but between these extremes there were intermediate cases, having neither the moderation of the first group nor the intensity of the second (*cholera moyen*). For the most part death took place in the algid stage; often,

however, where treatment was early employed, reaction was obtained, characterised by diminution of the evacuations, cessation of vomiting, appeasement of cramps, re-establishment of the pulse, and return of warmth. This reaction, when excessive, gave place to congestions of the encephalon and lungs, followed by prostration and stupor, designated a typhoid state. In these respects the epidemics of 1854 and 1866 presented similar characters to the two preceding, with merely slight modifications. In the two latter, papular and erythematous symptoms, diphtherite and swelling of the parotids, were more frequent than in the former, and further, a diminution in the number of attacks and deaths by ordinary diseases was observed during the last two epidemics. In 1854 an exception to this occurred in regard to the prevalence of *sudamina*, or sweating sickness. It continued on that occasion to affect one set of patients, while cholera attacked another, the two diseases appearing to run their course independent of each other. In some instances, however, they succeeded each other in the same individual; the occurrence of *suetie* at times seeming as preparatory of cholera, in others, seeming to act as a preservative against it. In all the epidemics, relapses and the occurrence of sequelæ of the disease were observed. In some instances, persons who had been affected in one or both the epidemics of 1832 and 1849, escaped in 1854; others were attacked in each of the epidemics which occurred, and some who had recovered on the two earlier occasions were carried off in 1854.

The duration of the disease in the several epidemics was very various. As a rule, it was of shortest duration in the early period of an epidemic, the patients often dying in eight or ten hours. In the most part, however, they succumbed in thirty-six hours to two days in the algide stage, or at a later period their reaction and the typhoid state set in. Excepting slight cases, recovery did not take place completely in less time than a few days. In the greater number of instances, especially if attended by reaction, it did not take place in less than two weeks; often convalescence was slow, being accompanied by persistent debility. Frequently the occurrence of cholera causes the death of the fœtus *in utero*, and induces abortion. In a few cases abdominal dropsy has disappeared after an attack of the disease.

In all the epidemics, it was observed that cadaveric rigidity set in early. In some exceptional cases certain movements of contraction and extension in the limbs occurred after death. The anatomical changes did not vary during the various epidemics. The isolated follicles of the intestine were exaggerated; the heart and vessels contained ropy black blood; there was more or less injection of the mucous membrane of the digestive tube, suffusion of the lungs; vascularity of the pia mater and mucous centres in cases of death after reaction. These are the appearances found in all seasons, and in all latitudes.

On the subject of etiology, it is observed that cholera has visited regions the most diverse—continents and islands—all latitudes, from the equator to the polar circle—climates the most diverse, and elevations above snow level. With regard to France, it has prevailed in all seasons, temperatures, and barometric conditions—in dry weather and in wet—under electric conditions the most diverse, and in all conditions of the wind. From the reports received, however, it is clear that a high temperature is favour-

able to the development and increase of the disease, it being during the hot season that the attacks are most numerous, and in the cold that they are less so. According to the reports of 1854, great and violent atmospheric perturbations, as hurricanes and sudden variations of temperature, are often followed by an increase in the number of attacks and deaths by cholera. The wind seems to exert an influence as an agent of propagation of cholera at a short distance, and places fully exposed have been found more severely affected by the epidemics than others that were more sheltered. In France the disease prevailed throughout the four arrondissements, at altitudes the most diverse, including the mountains of the Vosges, Jura, Alps, and Pyrenees, and on the plains that border the Mediterranean. It has prevailed in districts of different geological formations, including primitive, secondary, and recent; on the sides of hills, and in valleys, plateaux, and plains; bare and wooded districts; waste and cultivated; upon dry soils and upon humid; sandy, gravelly, and clayey; chalky and marshy: quartz, sandstone, and granite; in districts the most healthy, and in those that are unhealthy. As a general rule, however, it is observed that low situated localities, and those that are marshy, are especially favourable to the development and spread the disease, and that such as are elevated and naturally healthy, afford comparatively the greatest security.

As no kind of locality remained free from the disease, so no class of persons were exempt. All social grades and positions suffered from it. In some places, even where the hygienic and social conditions seemed most favourable, the rich and well-to-do suffered the most severely; nevertheless, the result of careful analysis has been to show that cholera has prevailed most where the hygienic conditions have been bad;—that want of air, crowding, insufficient clothing or warmth, fatigue, bad food and privation, all conduce to it; also, that depressing moral influences have the same effect. In addition to these, the development of the epidemic is favoured by the occurrence of inundations during the hot weather, contamination of the water, vitiation of the air by telluric and fetid emanations of various kinds, great agglomerations of people, and in fact, all violations of hygienic laws. Several reports specially indicate the liability to attack of such as are employed in attendance upon the infected, as also of those who have to deal with and wash the linen used by them, and with the interment of the dead. No age was exempt from attack; yet the two extremes of age and youth furnished the largest proportion of deaths. The weak and enfeebled offered least resistance to attack; yet the strong and robust were in no way exempt from it. Those suffering from chronic diarrhœa, from phthisis, and such as were convalescent, seemed also to be peculiarly exposed to it. There appeared, moreover, to exist an individual predisposition to attack; and it is remarked, in regard to the epidemic of 1854, that this predisposition was traced in numbers by consanguinity of the same family, rather than among such as were only related by marriage.

Various opinions have been expressed in regard to the nature of the disease. It has been considered to consist of a species of intermittent fever, an affection of the ganglionic system, a variety of typhus, a disease of the liver, a special fermentation, a new disease *sui generis*, the cause being according to some unknown, according to others, existing in conditions which

induce sporadic cases of cholera, and these becoming more general and intense, affect the masses in the form of an epidemic. Others look upon it as consisting of a miasmatic poisoning, of an unknown nature, affecting the nervous system, of organic life, or the blood, and entering the system by the pulmonary or digestive canals. This uncertainty in regard to the nature of cholera is reflected in the different opinions expressed as to its propagation. According to some authors, the disease springs up, is developed and multiplied, in a given locality under the influence of various morbid causes, becoming fatal by their accidental co-existence. Others add to the presence of insanitary conditions, the concurrence of accidental causes, such as modification of the air by the existence of diseases of the vegetable kingdom, and general debility arising from deterioration of alimentary substances. Some consider that it is imported by persons arriving from an infected locality, that the disease becomes multiplied and developed, and communicable from one to another by *mediate* contagion in the same way that typhus does. This theory, generally denied in 1832, was more frequently brought forward in 1847, and in 1854 became predominant,—sixty-one out of ninety-seven authors who allude to it expressing their opinion that cholera is thus transmitted.

In 1865 the opinions in favour of the importation and mediate contagion of cholera became still more general. It had appeared at Mecca immediately after the arrival at that place of a caravan of pilgrims from India; it increased in an atmosphere rendered pestiferous by the presence of thousands of putrefying dead bodies; it broke out at Cairo and Alexandria with the return to those places of the pilgrims; it invaded afterwards Constantinople, then Mocha, Barcelona, and Marseilles,—these being the ports between which and Alexandria communication was most frequent; and while it extended in other directions, Sicily, at which no vessel touched, escaped. At the same time, attention being awakened, it was easy to follow the track of successive explosions, and to trace with certainty the transmission of the disease from one individual to another.

Methods of treatment the most various were employed. Bleeding used in 1832, was less frequently had recourse to in 1849. In 1854 it was used against complications, as secondary fever; but in 1865 was too much forgotten from the tendency there is to pass from one extreme to another. Opium, vaunted by one set of authors, was condemned by another, so also with ipecacuanha. Evacuants, praised by some, were declared by others to be deadly. Antispasmodics, notably ether and chloroform, were generally employed with advantage against spasmodic phenomena. Frictions and excitants to the surface were used, but opinions in regard to them seem to be unrecorded, and a similar remark holds good in regard to the employment of cold. Quinine, generally without success in the algide stage, was a little more efficacious during secondary fever. Sulphate of strychnine and nuxvomica were either followed by want of success or by distinctly unfavourable results, and the same is said of valerianate of zinc. Sulphate of copper, reported on favourably in one place, was condemned in others. Without enumerating many other remedies, homœopathy was employed in many places. At Dienville, of sixteen cases thus treated fourteen died; and at Marseilles, in 1854, out of twenty-six similarly treated, twenty-one died. It is added that

where success followed remedies it was mainly due to the hygienic care, particularly to the means taken to keep up the temperature of the body. Some writers disbelieve in the power of medicine during the algide stage, observing that the function of absorption is then destroyed. Indeed, whatever methods were adopted in the epidemics of 1854 and 1865 the results were equally unfortunate as in the two preceding, namely, 50 per cent. of the patients died. When the rate of mortality is only one-third of those attacked, the results must be considered satisfactory, and when under that, as exceptional; in fact, statistics showing a smaller death-rate are open to mistrust. The manner of preparing statistics varies also; some writers include all cases, whether severe or slight, even simple diarrhœa, thus showing very favourable results, even when actual success is the reverse. Different degrees of strength in patients themselves also influence the rates of mortality. As a rule, an epidemic is more severe at its commencement, and less so in its decline; more fatal in infancy and old age; less so in youth and mid age; more limited in civil life, where patients are isolated; more fatal in hospitals, where it attacks organisms already debilitated, and where cases of the most severe nature are taken.

According to the majority of writers, the principal cause of mortality is the too frequent neglect of the early symptoms, and delay in employing treatment. Nearly all insist upon the necessity to combat the disease at its origin. A great many writers place preventive treatment, even before the curative, and only see safety in the application of hygiene to preserve persons and localities threatened by the disease. These measures consist, for the individual, of temperance, and care to avoid fatigue and excess of all kinds; for the inhabitants, cleanliness, renewal of air and ventilation, disinfection of threatened houses, and especially of such as have been attacked; the removal of dejections, the disinfection of matters and linen soiled by excretions, and the prompt interment of the dead. The wards of hospitals ought to be fumigated, and chlorides sprinkled in public places. Some reports suggest the disinfection of the atmosphere, either by fires of oil or by means of blasting-powder, and in confirmation state that in the village of Thiénant the epidemic suddenly disappeared after the occurrence of a fire, which consumed several houses. House-to-house visits, for the purpose of early discovering persons attacked, are recommended. The committee observes, with regard to these measures, that although all are very proper, yet, would it not be better to strangle the evil at its primary source, or, at any rate, to prevent it from reaching the country?

ANATOMY AND PHYSIOLOGY.

BOEHM AND OTHERS ON THE PHYSIOLOGICAL ACTION OF ARSENIUS ACID.—Professor Boehm of Dorpat records in the *Archiv für Experimentelle Pathologie und Pharmacologie*, vol. ii. Heft 2, his own researches and those of his pupils, on the physiological action of arsenious acid. The experiments were conducted by S. Unterberger upon cats and dogs. On injection of a watery solution of arsenious acid into a vein, a gradual sinking of the mean blood-pressure occurs. The amount of sinking is in direct relation to the quantity

of arsenic employed. This sinking is never preceded by an increase of the blood-pressure, and is only temporary when it owes its origin to small doses (0.005 to 0.03 grammes). At the same time, the pulse is rendered slow. These phenomena can be ascribed partly to paralysis of the abdominal blood-vessels, and partly to a diminution of the capacity of the cardiac muscles for action. The cardiac nerves in animals poisoned with arsenic exhibit normal relations. The vessels of the sympathetic areas are not paralysed by the poison.

The action of this drug upon the intestinal canal was also studied. To arsenious acid is generally ascribed a local irritating action. The chemical reason for this irritating action is quite unknown. This substance exhibits no special affinity either for water or for albuminous bodies. The action of this drug was studied in similar animals (dogs of the same size, age, weight, &c.) and its effects contrasted according as it was introduced by the mouth or by injection in solution into the circulation. When one has before him two similar animals which have been poisoned with arsenic, it is impossible from the *post mortem* appearance to say which of the two animals has received the poison by the stomach or through the blood. Not only so, but the phenomena during life are similar, and the only difference is that the smallest lethal doses when given by the mouth, are not sufficient to kill a similar animal when injected into a vein; and that in the latter mode of poisoning, death always occurs somewhat later than in poisoning through the stomach.

After death, no matter how the poison was introduced, the mucous membrane of the stomach throughout its whole extent was tinged dark red, was considerably swollen, and presented a velvety appearance. The redness was always confined to the most superficial layers of the mucous membrane. In the serous membrane of the stomach, beyond a very pronounced filling of the vessels, numerous large ecchymoses were generally present; loss of the substance of the mucous membrane was never observed. The degeneration of the gastric glands, described by other authors in the rabbit, were not found. Essentially different was the appearance throughout the whole length of the intestinal canal. The mucous membrane was covered throughout its entire extent by a yellow-coloured, jelly-like, but still consistent membrane about one millimetre thick. Microscopically, this membrane appeared to consist of innumerable pus-cells, embedded in a structureless material. This membrane could be removed, when the mucous coat was exposed, generally filled with small point-like ecchymoses. The villi were greatly swollen, and were devoid of epithelium over their entire surface, and numerous pus-like cells were also embedded in their substance. In the other organs, nothing remarkable was found. The liver and kidneys had never undergone fatty degeneration. Ecchymoses in the endocardium of the left ventricle were constant, often also in the other serous membranes. These results are not favourable to the assumption of a local irritating action of the poison. The authors hold as unexplained the action of arsenic on the gastro-intestinal tract. Schmiedeberg remarks the resemblance of the action of sepsin to that of arsenic, in that the former exhibits no local action. In the intestine, only traces of arsenic were found on analysis of its contents by the Marsh method.

GÖRZ ON NATIVELLE'S DIGITALIS PREPARATIONS
IN THEIR CHEMICAL AND PHYSIOLOGICAL RELA-

TIONS.—Dr. N. Görz (*Archiv für Experimentelle Pathologie und Pharmacologie*, Band ii.) has prepared the three chief constituents of digitalis leaves after Nativelle's method, and studied these substances in their physiological relations. These three preparations are the crystallised digitalin, the amorphous (soluble in water) digitalein, and the crystalline digitin. The two former are the physiologically active principles, whilst digitin is quite inert. Digitalin could not be obtained in sufficient quantities for experiment. From 3,000 grammes of dried digitalis leaves, 1,298 grammes of pure dry digitalein were obtained. This substance is obtained by precipitating it with tannic acid from a watery solution. The precipitate is then treated with mercuric oxide, extracted with strong alcohol and evaporated over a water-bath.

Digitalein is a light yellow, almost colourless non-hygroscopic powder, with an aromatic odour and exceedingly bitter taste. When applied to the Schneiderian mucous membrane or conjunctiva, it produces a strong burning sensation and increased secretion. It is easily soluble in cold and warm water and alcohol; benzoin and chloroform dissolve only a trace of it, and when pure it is insoluble in ether. Sulphuric acid colours it to a dirty green. On analysis it was found to contain per cent. carbon, 55.76; hydrogen, 7.35; oxygen, 36.89. It is therefore free from nitrogen, and with dilute sulphuric acid it conducts itself as a glycoside.

Physiologically, it is exceedingly active. The watery infusion used therapeutically depends alone upon the digitalein extracted by the water. Whilst one milligramme of crystallised digitalin produces in from twenty to twenty-five minutes the characteristic stand-still of the heart in systole, the same result is produced with the equal quantity of digitalein from twelve to twenty minutes (in the frog).

The 'substance crystallisée inerte' of Nativelle has the following elementary composition: per cent. carbon, 53.26; hydrogen, 9; oxygen, 37.74. It occurs in white crystalline needles, is completely inodorous and tasteless, is soluble in hot alcohol, insoluble in water and cold alcohol.

BOEHM AND KNIE ON THE PHYSIOLOGICAL ACTION OF HYDROCYANIC ACID, AND THE PRETENDED ANTAGONISM OF HYDROCYANIC ACID AND ATROPIN.—Preyer affirmed that atropin was a certain antidote to hydrocyanic acid (*Die Blausäure physiologische übersucht*, Bonn, 1868-70). Professor R. Boehm and A. Knie (*Archiv für Experimentelle Pathologie und Pharmacologie*, Band ii.), from their experiments show that Preyer's affirmation is incorrect. They experimented for the most part on cats, which were often narcotised with chloral, which they recommend for this purpose. In all experiments tracheotomy was performed. Preyer employed almost exclusively rabbits. The hydrocyanic acid employed was the official, containing two per cent. It was always injected into the jugular vein. Preyer applied the drug to wounds, or to the mucous membrane, or injected it into the subcutaneous tissue, or let the animal respire it. The drug is most active when injected direct into the veins, and next to this comes inhalation.

The authors then criticise Preyer's experiments, and from their own investigations arrive at the following results.

1. Hydrocyanic acid acts on the central nervous system, the functions of which are abolished by large

doses after stimulation, *i.e.*, increase, of short duration. 2. The disturbances of respiration and circulation arise from analogous changes in the activity of their centres in the medulla oblongata. 3. The vagus does not play a part either by the action of hydrocyanic acid on the respiration, or by that on the heart. 4. Atropin is no antidote for hydrocyanic acid; the only rational method for the treatment of poisoning by this consists in the application of artificial respiration. WM. STIRLING, D.Sc., M.B., Leipsig.

MURIE ON THE HOMOLOGIES OF THE MUSCULUS STERNALIS BRUTORUM.—In the course of a paper 'On the Habits, Structure, and Relation of the Three-banded Armadillo' (*Tolyteutes conurus*) (*Transactions of the Linnean Society*, vol. xxx. p. 106) Dr. Murie discusses the much-vexed question of the homologie of the 'musculus sternalis brutorum'—a structure not unfrequently found in the human subject.

By some authors this muscle has been considered to represent a scantily developed layer of the panniculus carnosus; by others, an upward continuation of the rectus abdominis; by others, a downward prolongation of the sterno-mastoid; by others, as allied to the supra- or sterno-costalis; and, lastly, by the Dutch anatomist, Halbertsma, as a muscle *sui generis*.

[From the dissection of a Cape ant-eater (see *Transactions of the Linnean Society*, vol. xxvi. p. 568, pl. 45, fig. 1), in which the muscle in question coexisted with both a well-marked upward prolongation of the rectus abdominis and with a downward continuation of the sterno-mastoid, the reporter was led to conclude, with Professor Turner—'On the Musculus Sternalis' (*Journal of Anatomy and Physiology*, vol. i.)—that it is a true representation of the panniculus.—*Rep.*]

'From a study of the data,' says Dr. Murie, 'I am inclined to hold a middle view.' In the human subject its special name may be retained because of its variable nature and the possible junction of two different muscles and layers. It has evidently nothing to do with the supracostales, which lie at a deeper plane and whose fibres run nearly at a right angle to the overlying muscle. It can have no relation with the rectus, for this muscle, when produced upwards, may be as far as the first rib, runs beneath the supracostal. Its occasional connection with the pectoralis major and obliquus externus have been regarded by none, and rightly, as evidence of a relationship with either of these two structures. 'It may be admitted as unique in man, forasmuch as it frequently conjoins the sterno-mastoid and external oblique, &c.; but this by no means implies absence of its representative elements in animals. On the contrary, by its very irregularity is its composition best evinced.' When alone developed posteriorly it may be regarded as the true homologue of the panniculus, as Hallet, Turner, and the reporter have held; but its anterior end in relation to the sterno-mastoid has similarity to the rearward prolongation of that muscle existing in the three-banded armadillo, and so lends support to the views of Henle and Theile. The alleged objection of its lying on a plane beneath the platysma myoides rather strengthens the view as to its tegumentary character, for in the manatee 'an almost distinct sheet of the general robe of the panniculus starts from over the sternum, passes forwards beneath the transverse platysmal fibres *en route* to the malar arch.' If it can be shown hereafter, that as muscle

or tendinous prolongation, it goes superficially to, and does not become thoroughly fused with, the manubrial extremity of the sterno-mastoid, 'then, undoubtedly, the musculus sternalis is none other than a remnant of the lower mammalian cutaneous sheet.'

J. C. GALTON.

MORISON ON BONE-ABSORPTION BY MEANS OF GIANT-CELLS.—Mr. Alexander Morison (*Edinburgh Medical Journal* for October, 1873), taking up the researches of Kölliker on absorption of bone by means of giant-cells (see LONDON MEDICAL RECORD, 1873), finds, on examination of sections through the jaw prior to the formation of the tooth-sac, that many giant-cells contain clear round or oval holes of various sizes. The larger and more distinctly defined ones, in the centre of which a débris resembling fatty particles is sometimes to be detected, appear to be originated by a disintegration of minute portions of the protoplasm of the giant-cell. From this the author takes it as possible that the giant-cells, after having ceased to exercise their destructive, *i.e.* absorbing function, become disintegrated. Morison takes it also as probable that sequestra are separated from living bone by means of giant-cells, for, on examining a fresh sequestrum from a case of necrosis of the tibia, there were found Howship's lacunæ covering all aspects of the sequestrum, and the blood and pus around the preparation contained multinuclear giant-cells floating about.

As regards the origin of giant-cells, Morison agrees with Kölliker and others that many of them are in genetical connection with the osteoblasts, but that others probably develop from embryonic connective tissue; for there occur bone-spaces with here and there a giant-cell entirely destitute of osteoblasts, but containing the nuclei of embryonic connective tissue. These nuclei, generally scattered, are here and there closely aggregated and show an internuclear opacity, which, however, has not the distinctly granular appearance of the opaque cell-substance of a fully developed giant-cell; but this appearance is in variable degree, even in fully formed cells. It is possible that the aggregation of nuclei may be the first stage in the formation of a giant-cell; one has only to imagine that these nuclei prepare a cell-material each around itself, which, coalescing with that round its neighbours, produces the multinuclear giant-cell. E. KLEIN, M.D.

PATHOLOGY.

HANOT ON APHASIA IN GENERAL PARALYSIS. In the following abstract we have endeavoured to state the principal points of a paper by M. Victor Hanot (*Gazette Médicale de Paris*), upon the pathological history of aphasia, occurring during the course of general paralysis, and upon the indications of the thermometer in apoplectic seizures.

Aphasia, the author observes, is only exceptionally mentioned by authors as a symptom in general paralysis—*i.e.*, aphasia as distinguished from that hesitation in speech which may be regarded as an infallible indication of a diffused interstitial encephalitis (general paralysis). According to Baillarger, this paralytic hesitation results from spasmodic muscular action. Requin attributes it to feebleness

of muscular action. Slowness of utterance may exist for some time, especially at the commencement, before tremor of either the tongue or lips is apparent. At that time it is doubtless attributable to a morbid state of the cortical substance, involving disorder of memory and ideation. Subsequently, however, this is brought into association with muscular tremor of the tongue and lips, which M. Hanot subsequently refers to sclerosis of the white substance. Is it certain, the author asks, that these tremulous movements of the muscles concerned in phonation are of a convulsive nature? Doubtless, he adds, the tremor of the tongue and lips and the persistence, for a variable period, of muscular power in the limbs already affected with trembling, would seem to indicate a spasmodic character; but, as is well known, this apparent integrity of the muscles is followed by actual paralysis. Charcot is of opinion that the tremor in vocalisation depends upon muscular feebleness, and partakes of the paretic rather than the spasmodic or convulsive character.

This trembling of the muscles is, beyond doubt, solely attributable to changes in the cortical layer of the convolutions; but it should also be borne in mind that, by extension of morbid processes, sclerosis of the medulla oblongata, and even of the spinal cord, is ultimately superadded to the lesions of the convolutions.

Sclérose en plaques has been shown by Charcot and other pathologists to be one of the morbid conditions in paralysis agitans. Large modifications of this form of aphasia are met with, varying from simple hesitation and the misplacement of letters, volubility alternating with slowness of utterance, up to unintelligible jabber and the impossibility to articulate the simplest words, that is characteristic of the latest stages of the malady. It is difficult, sometimes, to distinguish between the hesitation of speech of general paralysis and of sclerosis (paralysis agitans). In the former, however, there is generally a complete unconsciousness of the defect.

A case related by M. Hanot showed that, although exceptionally, genuine aphasia may occur in general paralysis. It may, however, be asked why this coincidence should not be more frequently met with, since the frontal convolutions are more or less involved in diffused interstitial encephalitis. This is doubtless a question of degree, while it is probable, as observed by Parchappe, that aphasia does not occur from lesion of the grey matter only, but from implication also of the white fibres. The maximum degree of alteration was observed, in the present instance, in the left frontal lobes, although those on the right side were also atrophied.

Sections of the convolutions showed the degree to which the change had advanced in both the white and grey matter of the frontal lobes, and exhibited thickening to the extent of three or four times its normal volume over the atrophied convolutions. The want of symmetry is not indicated by any clinical signs, but on microscopical examination will be found to depend upon the greater or less extent of sclerotic changes, which may be so slight as to be scarcely detectible. Doubtless these changes in the connective tissue influence the nutrition of the nerve-cells, the trophic influence of which in the spinal cord has been dwelt upon in the writings of Brown-Séquard, Charcot, Vulpian, and others.

With reference to the diagnostic value of the thermometrical indications in these cases, M. Hanot states that, in his own and M. Westphal's observa-

tions, they found that in the sudden congestive seizures of general paralysis the temperature rises immediately after the attack and continues to rise until death. On the other hand, the author adds, MM. Charcot and Lépine have shown that in comatose attacks from cerebral or meningeal hæmorrhage, the temperature falls, or remains stationary after the attack, to rise before death takes place. M. Bourneville has observed the former state of things in uræmic seizures. W. B. KESTEVEN.

LUBIMOFF ON THE PATHOLOGY OF GENERAL PARALYSIS OF THE INSANE, WITH SPECIAL REFERENCE TO A COLLOID DEGENERATION OF THE VESSELS OF THE BRAIN.—Dr. Alexis Lubimoff, of Moscow (*Archiv für Psychiatrie*, 1874), agrees with most observers in thinking that there is a chronic interstitial inflammatory process, and an increased development of spindle-shaped connective tissue cells. These are shown best in preparations after Lockhart Clarke's method, and especially to advantage in slowly made ones. Taking his materials chiefly from the frontal convolutions, he has studied the blood-vessels, nerve-elements, and the development of connective-tissue. As to the first, he finds that there is no new formation, as some have asserted; but in no disease connected with psychiatry is there so great an accumulation of granules round the vessel. Meyer thinks these young elements are a result of proliferation, but Lubimoff that the walls of the vessel have undergone a process of decomposition; at times these granules look like extravasated blood, and certainly red blood-corpuscles and heaps of pigment are often found among them. The vessel walls are often found thickened by a homogeneous shining mass, which he calls 'colloid' or 'waxy' degeneration, in no way related to amyloid.

Rokitansky in his treatise describes colloid degeneration of the nerve-elements, but says nothing about the walls of the vessels. Billroth describes a yellow gelatinous decomposition of vessels in a cerebellum, but the patient had not progressive paralysis. Schüle and Arndt have met with appearances similar to Lubimoff's in the transition layers where the grey substance passes into the white. The vessels affected are chiefly met with in the deep grey layers, and vessels have been traced from the pia mater through the grey matter, and into the white, which only showed this colloid alteration in the deep grey layers. It consists of a homogeneous transparent shining thickening of the walls without striation, either regularly disposed, or in the larger vessels granular. These granules are of different sizes and placed irregularly, and cannot be mistaken for the proper nuclei of the walls. By transmitted light the vessel-wall is brilliant, but dark by reflected light. Chemically examined, it resists many tests. The granular form looks as if composed of lime, but it resists all the tests for that and for fat, amyloid, &c. Alkalies only cause a swelling of the vessel wall. Carmine is not imbibed, and the xantho-proteine reaction gives a faint yellow. Where this colloid degeneration has attacked the vessels, no proliferation of new elements is seen, as is so frequent in progressive paralysis, nor are there pigment-masses and spindle-shaped cells, though these can be seen in other sections where the colloid vessels do not show. The changes in the nerve-cells consist of diminution of size, and in substitution of granules for the proper nuclei; at another time the cell-wall seems to have decayed, and the nuclei are surrounded with granular matter.

The spindle-shaped cells of the connective tissue vary in shape in different parts of the brain, and much care is required in speaking of any change in them. They are to be seen principally with their long delicate processes (the Deiters' cells of Dr. F. Boll), and in Lubimoff's experience seem always more or less pressed out. He describes what he calls 'Nester'—groups of these cells surrounding the vessels, not closely hugging them, but placed at a little distance and apparently holding communication with the vessel by their long hairy processes. One explanation of the occurrence of psychic lesions alternating with lucid intervals, appears to rest on the temporary swelling of these spindle-cells as a result of hyperæmia. Most of the pathological changes in general paresis are to be found in the fifth grey layer and in the part near to it where the grey substance passes into the white, whilst the special lesions of the ninth and seventh nerves must be sought in the neighbourhood of the fourth ventricle, and in the aqueduct of Sylvius.

The author concludes by terming the spindle-cells of the fifth layer which have thin and tender processes, the 'mediums of association,' whilst those of the pyramids which are thicker and coarser he terms 'mediums of projection'; and he draws up a theory as to the functions of these cells in connection with the phenomenon so often seen in brain-disease, of memory of things long since passed away but forgetfulness of quite recent events.

T. C. SHAW, M.D.

MEDICINE.

EMMINGHAUS ON EPILEPTIC SWEAT.—Dr. H. Emminghaus (*Archiv für Psychiatrie*, 1874), recently met with two cases which confirm some of Griesinger's remarks on epilepsy. In both of them epileptic conditions were present, and in both paroxysms of sweating, which in the woman were accompanied by feelings of giddiness, though this combination did not invariably occur in the man. In the woman there had been attacks in childhood, sweating with fainting at the climacteric period, and she had the peculiar epileptic expression, contraction at the corners of the mouth, form of skull, etc. In the other case there had been no true fits, only indefinite signs of them, but there was strong hereditary predisposition, and he indulged in spirituous liquors. Griesinger's remark was that 'sudden outbreaks of sweat often are connected with epileptic nusus,' and that all sorts of symptoms such as cold in the feet, sudden blushing, gastralgia, greediness, should be borne in mind as connected with epilepsy, for then alone they get their true interpretation. The woman's case showed a fact noted by Griesinger, that often an epilepsy which appears in childhood disappears afterwards, and then returns after periods of ten years; she had been free from the fits since puberty, and the sweating began when she was fifty. In his book on diseases of children, Emminghaus relates the case of a boy affected with mitral disease, and whose sister had *petit mal*, in whom, besides constitutional weakness, there were muscular spasms and loss of consciousness when voluntary muscular efforts, such as running, were made. Many persons ascribe the sweating of epileptics to the excessive muscular action; but this is not always the case, for in the instances above noted the eruption of sweat was directly

connected with the vaso-motor affection of the complaint.

T. C. SHAW, M.D.

BARTELS ON PERIPLEURITIS.—Bartels (of Kiel) in the *Deutsche Archiv für Klinische Medicin*, 1874, narrates three cases of peripleuritis. By peripleuritis is understood a suppurative inflammation in the costo-pleural cellular tissue, occurring independently of traumatic causes or of pleurisy. This disease is rare. The only other reported cases are two by Billroth, two by Wunderlich, and one by Suadicani—making a total of eight cases. Respecting its etiology, Bartels says nothing is known. The abscess appears to have little tendency to open internally into the pleura. It sometimes by extension causes pericarditis. Nephritis is a common complication.

In speaking of diagnosis, Bartels says the important point is to distinguish this condition from empyema. The affected side of the thorax is sometimes as much bulged and as motionless in peripleuritis as in pleural effusion, but in the former disease the bulging has a much greater tendency to become especially prominent in one or two intercostal spaces. The form of dulness differs also in the two diseases. In peripleuritis the inferior portions of the thorax are usually resonant, and the lower border of the lung descends during deep inspiration. Another important feature of peripleuritis is the complete absence of any displacement of neighbouring organs. When fluctuation is discoverable in an intercostal space, the abscess usually becomes less tense during inspiration and more so during expiration. The prognosis is grave. Of the eight reported cases four died, in two recovery was complete, and in the remaining two fistulous openings and deformity were left. The important point in the treatment is evacuate the pus as early and as completely as possible.

T. HENRY GREEN, M.D.

SYPHILOGRAPHY.

BRUBERGER ON SYPHILITIC MENINGITIS AND SYPHILITIC CEREBRAL DISEASE.—In making this valuable contribution to the pathology of syphilis of the nervous tissues, Dr. Bruberger (*Virchow's Archiv*, May 6, 1874) narrates with extreme minuteness the clinical history and *post mortem* examination of a patient who contracted syphilis in 1871, had destructive ulceration of the soft palate two years later, and sudden complete motor paralysis of the arms and legs occurring while under excitement partly alcoholic, partly of another kind. The paralysis was so complete that the patient was unable to move a finger or toe, or make the slightest effort to change his position in bed. Meanwhile, the cutaneous sensibility of the body and limbs was ascertained by many careful experiments to be only very slightly diminished, and the susceptibility of the muscles to electrical stimulus was as keen as in health. The muscles of the face and of respiration were not paralysed, nor was control of the sphincters wholly lost. Consciousness was lost only for a few moments, and, having returned, remained unimpaired to the last. The intellect was also intact. Iodide of potassium, in large doses, was administered for four weeks, and then changed for mercurial inunction. Six weeks after admission the patient regained the power of slowly clenching the fist and opening the hand again, but no other improvement ensued. After lingering nearly four months, he sank exhausted by bed-sores and vesical

irritation. In making the diagnosis, no hypothesis explained all the symptoms. The bilateral symmetry of the motor palsy and the unimpaired sensorium suggested the cord to be the part attacked. The suddenness of onset indicated extensive hæmorrhage or plugging of a large artery, were it not that in syphilis paralysis does occur suddenly without either of these conditions being found after death. Again, a thrombosis or hæmorrhage would have almost certainly produced some hemiplegia. Local softening or the presence of a gumma in the medullary tissue was, like hæmorrhage, precluded by the undiminished intellectual power. Lastly, disease of the meninges at the base, a frequent form of cranial syphilis, was rendered improbable by the absence of peripheral irritation of all kinds; neither convulsions nor slowness of pulse, nor sinking in of the abdomen, &c. were present. But the *post mortem* examination revealed most unexpected conditions, the principal being inflammatory thickening of the dura and pia mater in the cervical portion of the spinal cord and base of the brain, producing a leathery sheath which had formed numerous attachments to the medulla and to the bony surfaces. There were also hæmorrhages into the spinal cord, with atrophy of the grey substance and considerable widening of the central canal. In the skull, inflammation had spread widely through the meninges over the basilar bone, and had changed the pia mater at the base of the brain into a thick grey glue-like mass. Another striking alteration was a peculiar change in the vessels of the skull, causing thickening of their walls and a nodular condition of their calibre; the arteries throughout the rest of the body being free from perceptible change. The remaining phenomena had nothing specially syphilitic. The author then recapitulates the points of interest in the case, and has collected the published records of syphilitic disease in arteries which consist mainly of the observations of Hughlings Jackson, Moxon, and Clifford Allbutt, and of one or two others. These observations show that ordinary atheroma, if at all a syphilitic product, is not the usual arterial affection, which consists of irregular thickening of the coats, especially of the middle tunic of the vessel, producing nodular projections with narrowing and some loss of elasticity of the vessel, but no fatty or calcareous degeneration of its walls: further, that this inflammatory change of the arteries is very local, attacking the vessels of one or two regions, and not spreading through the arterial system generally. After remarking that the extensive disease of the meninges caused no convulsive affection of any kind, again a peculiarity of syphilitic meningeal disease, the author notes, without offering an explanation, the curious fact that sensation was intact throughout the body, and yet the grey matter of the cord was far advanced in atrophy, while the white fibres were so tightly strangled at one point of the medulla as to produce almost total loss of voluntary muscular power.

BERKELEY HILL.

PUBLIC HEALTH.

THE SANITARY LAWS AMENDMENTS BILL.

The Parliamentary Bills Committee of the British Medical Association have submitted this document to a few of the leading Medical Officers of Health. From their report we learn that replies have been

received from the following medical officers of health: Dr. Bond, Gloucester; Dr. Child, Oxford; Dr. Fox, Chelmsford; Mr. Haviland, Northampton; Dr. Wilson, Leamington; Dr. Syson, Huntingdon.

Dr. Bond has not attempted to criticise or amend the proposed Bill, believing that it has been drawn up 'to meet the administrative exigencies of the office'; but has confined himself to 'suggestions for the consideration of the Committee as addenda to Mr. Sclater-Booth's Bill.' These 'addenda' comprise eighteen clauses as to 'sewers and drains,' 'removal of nuisances,' and extended definition of the word 'nuisance'; 'prevention of the spread of infectious diseases,' by providing hospitals and inflicting penalties for exposure; enlarged interpretation of 'person in charge'; also rendering it imperative on medical practitioners to forward as early as possible notice of infectious cases, and payment for such notice; also as to 'water-supply,' and 'provision of privies and water-closets.' Under this last head Dr. Bond proposes in certain cases to empower an owner of property not having any land on which to erect a privy or privies, to acquire such land from his neighbour, provided no nuisance or annoyance, public or private, is created thereby.

Dr. Child is of opinion that, 'if passed as it stands, much of the Bill would be a dead letter in country districts,' owing to its 'permitting people to do things which they have not the slightest intention of doing.' Dr. Child suggests that sections 50 and 55 (?) should be rendered compulsory, and considers sections 11, 50, and 41 to 49, as the most important in the Bill, particularly 47 and 48, as giving power to a rural sanitary authority to make bye-laws. But he thinks these clauses are by no means clearly expressed, and will be perfectly useless, unless rendered compulsory. As to omissions in the Bill, Dr. Child complains (1) that it contains no provision for rendering the appointment of a Sanitary Committee compulsory; and that, without the appointment of such a Committee, it is impossible for any ordinary Board of Guardians to do any serious sanitary work. Dr. Child therefore suggests that the appointment of a Sanitary Committee should be made compulsory, and that it should be put upon the same footing as the Assessment Committee. Another omission noticed is, that the Bill contains no clause conferring any legal status on the Central Committee for a compound district. Dr. Child also suggests that the power of compelling combination of two or more port sanitary authorities should be extended (under Section 14) to all sanitary authorities. In Section 41, Dr. Child would add, 'or inspectors of nuisances' after the word 'surveyor.' Attention is also drawn to the omission of all further provision for the prevention of the spread of infectious diseases, and 'of all systematic attempt to arrange, simplify, and consolidate the forty Acts or so which now constitute what is understood (?) by "sanitary law."' However, Dr. Child would take the Bill for what it is, as he thinks it professedly leaves more weighty and disputed matters to be dealt with more at leisure next session. The urgent need for amended legislation, Dr. Child thinks, is very great; and that, until medical officers are assisted by such legislation, their work is paralysed.

Dr. Fox thinks the designation of the Bill in the *British Medical Journal* as 'in the main an office Bill' is the correct one. He is of opinion that five clauses only will be of service in his districts—viz., 11, 20, 56 and 50; and suggests that in clause 50, after the words 'if it shall be represented to any

'sanitary authority,' the words 'by the medical officer of health' shall be inserted, as an inspector of nuisances is not competent to give an opinion as to the quality of water. Adopting the 'omissions' alluded to in the *British Medical Journal*, Dr. Fox calls attention to others, viz.: 1. The omission of any provision as to returns of mortality and payment for the same; 2. Omission of any clause empowering a medical officer of health to inspect, for the purpose of making his returns or reports, the books of a registrar of births and deaths; 3. The omission of provisions for checking the spread of infectious diseases; 4. Overcrowding.

Dr. Wilson, of Leamington, is of opinion that 'no urgent necessity for further sanitary legislation this session exists; but, as the bill is a Government measure, he would suggest that Clause 5 should also make provision for giving a legal status to the committee of delegates; that Clause 21 should also apply to every rural sanitary authority invested with urban power; that to Clause 33 should be added words giving any sanitary authority compulsory powers to acquire land for dealing with sewage; that Clause 50 should be altered so as to enable any sanitary authority to close any well, &c., immediately on having reason to believe that it was polluted; also that any sanitary authority should be enabled to call upon owners to provide proper water-supply. Dr. Wilson also makes several suggestions, in the main similar to those made by Drs. Bond, Child, and Wilson as to infectious diseases; and would like to see every rural sanitary authority endowed with powers to make bye-laws as to dwellings, ashpits, privies, and cesspools, common lodging-houses, and slaughter-houses. He also suggests that the Local Government Board should be empowered to enforce combination; and that such combinations should not be dissolved without their consent.

Dr. Syson suggests that Mr. Sclater-Booth's bill should be accepted as far as it goes, but that attempts should be made so verbally to alter Clause 45 as to make it clear that rural sanitary authorities can and may make bye-laws on all matters on which an urban authority may make bye-laws; and that, by order of the Local Government Board, any sanitary authority *shall* make bye-laws on one or all these matters; that Section 50 of the Act should be amended so as to enable any sanitary authority to order the closure of any well, &c., on the certificate of any public analyst or their medical officer of health; power being given to rescind such order on being satisfied that the water, etc., has become or been rendered fit for drinking purposes; that, looking at the Bill as an 'office Bill,' it is highly important to specify what drains, sewers, etc., do, and what do not, belong to a rural sanitary authority (the same as to urban authority); that all drains, privies, water-closets, cesspools, and ashpits, shall be under the control and survey of the sanitary authority, and shall be altered, repaired, or reconstructed from time to time as they may think fit. With regard to the seizure of diseased meat, Dr. Syson suggests that any policeman should be empowered to seize meat at any time, just as inspectors of nuisances are now empowered to do; and that, 'dealt with by a magistrate,' in 25 and 26 Vict., c. 117, s. 2, should be interpreted so as to facilitate and unify proceedings under that Act. Also that power should be given to all sanitary authorities to close any house, or part of a house, presented to them by their medical officer of health as unfit for human habitation, power being

reserved to revoke such order on proof of fitness for habitation.

The Parliamentary Bills Committee have recommended that a deputation should wait on the Private Secretary to the President of the Local Government Board, and urge the great desirability of the following amendments and addenda to the Public Health Amendment Act now before Parliament.

The Committee have divided their recommendations into two parts. Firstly, amendments and addenda, without which they believe Mr. Sclater-Booth's Act will be of little or no service, even as a temporary measure; secondly, points entirely omitted in any existing sanitary Act, but as to the necessity of which almost all medical officers of health and sanitarians are strongly convinced.

The Committee found, after extensive inquiry, that Clauses 10 and 11 were everywhere hailed with great satisfaction as removing serious existing obstacles in the way of sanitary work.

An unanimous expression of opinion was also elicited that the principle laid down by Clause 14, should be carried still further; the Committee therefore, recommend that the following Clause, or one similar in extent or purpose, be added to the Bill.

Sanitary Authorities may be combined.—The Local Government Board may combine the sanitary authorities of several districts, urban as well as rural, or both, and assign to such authority a title, and otherwise proceed, as in the case of an ordinary combination of sanitary authorities, rural and urban, or both. And such combination shall be an united district to which all the provisions of the Sanitary Acts which relate to sanitary authority shall apply, except a necessity for any previous application to the Local Government Board and previous inquiry.

In Clause 21, it seems most desirable that the words 'or rural' should follow the word 'urban,' or else the word 'urban' should be omitted. The great urgency and necessity for the addition of these words having been most strongly urged from all quarters. The Clause should, therefore, read, 'Every urban or rural sanitary authority (or Every sanitary authority) shall, where the Local Government Board direct, make due provision for the purpose—cleansing of streets, the removal of house refuse from premises, and the cleansing of earth-closets, privies, ashpits, and cesspools within its district.'

It appears desirable also to add 'and employing and removing the contents' after the word 'cleansing.'

As the adoption of the foregoing amendment might entail considerable responsibility on a sanitary authority, the following Clause is recommended as a necessary sequel. 'All privies, drains, ashpits, and cesspools shall be under the control and survey of the sanitary authority, and shall be altered, repaired, or reconstructed from time to time as the sanitary authority may think fit.'

It also seems desirable to add to such a Clause—'And no new privy, cesspool, ash-pit, water-closet, or earth-closet shall be erected without the plans for the same having been submitted to and approved by the sanitary authority.'

The Committee have been informed that several Local Acts contain Clauses similar to this suggested one, so no new principle or apparent infringement of private rights would be involved by its adoption.

The Committee think it would be desirable to state in Clause 40 that this Clause in no way affects the powers of a sanitary authority to conduct proceedings and issue notices through and by any officer

duly authorised by resolution, special or general, under 29 and 30 Vict., c. 90, sec. 48.

To Section 31, should be added, for the sake of the convenience of persons living in rural districts 'at the office of or to Inspector of Nuisances.'

Also, as the appointment of 'surveyor' is neither compulsory nor universal, a Clause to the following effect is recommended. 'Where no "surveyor" has been appointed by a sanitary authority, any notices or orders which a surveyor is appointed to receive or serve under any Sanitary Act shall, with the consent or by orders of the Local Government Board, be served or received by the Inspector of Nuisances.' This appears to be a most important addition, as many notices under the Sanitary Acts are to issue from and be signed from the 'surveyor,' who also has powers of immediate action in cases of emergency conferred upon him (*vide* page 29 Official Digest. Rural Sanitary Authorities).

As Clauses 47 and 48 are rather vague, it is suggested that the following Clause be added to the Bill. 'After the passing of this Act, any rural sanitary authority may, and by order of the Local Government Board shall, be endowed with and exercise any of the powers, duties, discretions or authorities vested in or exercised by any urban sanitary authority under this or any other Sanitary Act.' By Sanitary Acts in this Act is meant 'the Local Government Acts,' 'the Sewage Utilisation Acts,' the 'Nuisance Removal Acts,' 'Common Lodging-houses Acts,' 'Diseases Prevention Acts,' 'Bakehouse Regulation Act,' the 'Artisans' and Labourers' Dwellings Act,' 'Baths and Washhouses Act,' the 'Labouring Classes Lodging-house Acts,' and the 'Public Health Act, 1872.'

Clause 50 has been generally welcomed; but, at the same time, from the strictures passed upon its wording, the Committee recommend the substitution of the following.

'If it shall be represented in writing to any sanitary authority by the medical officer of health or the public analyst that, within their district, the water in any well, spring, pump, tank, or pond used for drinking purposes is so polluted as to be unfit for drinking purposes, such authority may, by their order conspicuously affixed at, to, or near such well, spring, pump, tank, or pond, direct the same to be closed, or make or take all necessary steps to close the same; provided always that they may at any time revoke such order, on proof being afforded that the water has become or been rendered fit for drinking purposes.'

'Any person aggrieved by such order may appeal to the justices having jurisdiction within the district, who, if they think fit, may order an analysis to be made, and may, if such analysis be favourable, revoke the order made by the sanitary authority.'

'In reporting on the water in any well, pump, spring, or tank, the medical officer of health or public analyst shall state whether, in his opinion, there is a probability of such water recovering its purity within reasonable time.'

The Committee would also suggest that Clause 55 be still further extended, so as to enable a police officer as well as a medical officer of health or inspector of nuisances (26 & 27 Vict. c. 117, sec. 2), at all reasonable times, to examine and, if necessary, seize any unwholesome food, etc.

Also, in order to be dealt with by a magistrate, it shall suffice, if one be not within one mile from the place where the meat was seized, to retain, or if necessary, destroy the meat, &c., and summon the

person in whose charge or possession the meat, &c., was found to the next petty sessions. But in no case must any meat, &c., be destroyed until it has been inspected and examined by the medical officer of health or his legally qualified deputy.

So far, the Committee have touched only upon points raised in or by Mr. Sclater-Booth's Act. They would, however, most emphatically urge the urgent necessity for immediate provision being made for the payment of registrars for mortality returns.

This has been suggested (and authorised) to sanitary authorities by a circular letter from the Local Government Board. As the Local Government Board possesses no compulsory powers in this matter, their recommendation has in numberless districts been unattended to. The circular letter above referred to recommended that returns should be furnished and payment made according to the scale laid down in Sir C. Adderley's Bill.

The committee urge the Local Government Board's suggestion on the Government, and would also suggest the following addition as an appendage to it.

'And it shall be lawful for any officer of health, at all reasonable times after one week's notice in writing, to inspect the books of the registrars or sub-registrars of births and deaths, and to make notes and extracts from them for the purpose of making or compiling his reports, returns, or statistics.'

At present, registrars may and do refuse to allow their books to be inspected, although, without such inspection, no officer of health can make the returns required of him by Act of Parliament and by the Local Government Board. No provision is made for preventing the further spread of infectious diseases; no provision of fever hospitals is made compulsory on sanitary authorities; nor is any provision made for early information of new cases of infectious sickness from medical men.

'Overcrowding' is entirely overlooked, and the Committee would suggest that, by the repeal in this Act of 18 & 19 Vict. c. 121, s. 29, of the words 'consisting of more than one family,' would leave the medical officer of health all-powerful under the definition of nuisances, 18 & 19 Vict. c. 121, s. 8; 29 & 30 Vict. c. 90, s. 19.

If it be the opinion of the law officers of the Crown that the definition of 'any house or part of a house so overcrowded as to be dangerous or prejudicial to the health of the inmates' is irrespective of the limitation as to 'more than one family' in 18 & 19 Vict. c. 121, s. 29, a declaration of this opinion will, of course, be equivalent to a new and amended clause.

On the above and many other matters, the suggestions of Dr. Bond, medical officer of health for Gloucester, are very valuable, and they are handed in as likely to diminish the labours of the Local Government Department in framing amended sanitary legislation. The Parliamentary Bills Committee of the British Medical Association have, however, through their deputation, endeavoured as far as possible to be very brief, and for the present only attempt to render existing legislation officially workable, and to render the duties required of medical officers of health by Acts of Parliament, the orders of the Local Government Board and public opinion fairly practicable. As a last word, the Committee was convinced of the desirability of the introduction of a clause rendering every Act permissible by any sanitary authority compulsory by order of the Local Government Board.

Also that, owing to the working of some of the

clauses in Mr. Sclater-Booth's Bill, the final clause should state, except where expressly repealed, all powers conferred were in addition to, and not in lieu of, any already conferred by existing Acts.

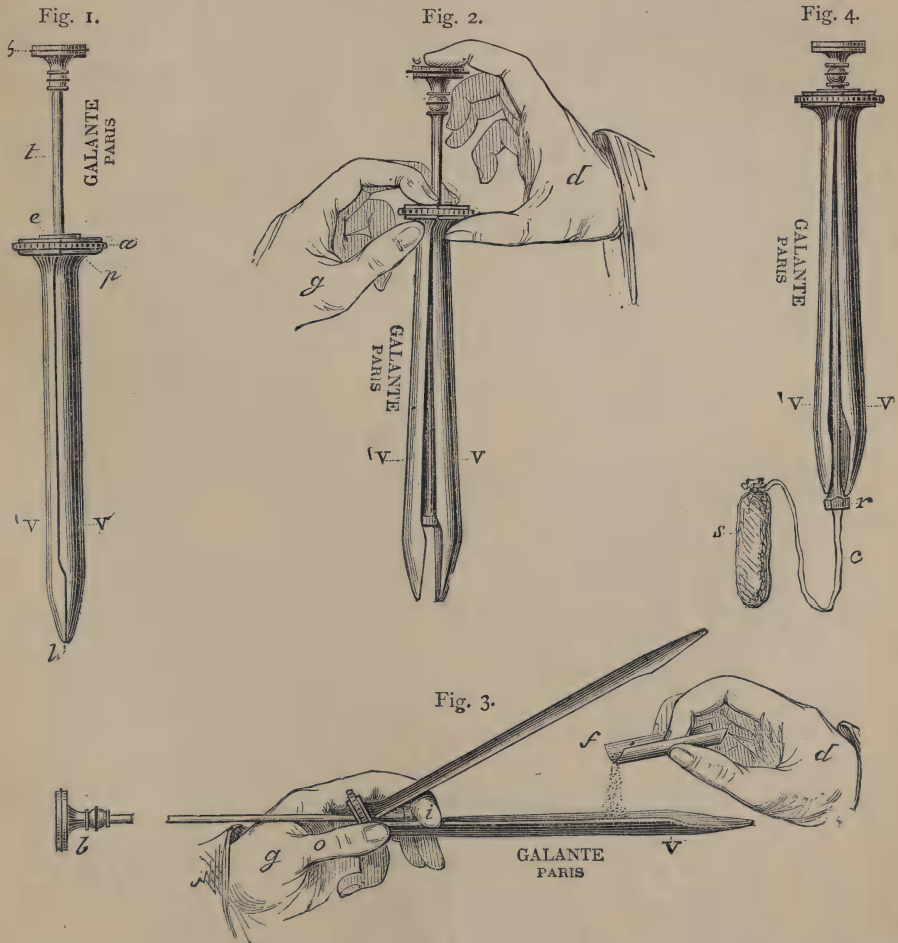
NEW INVENTIONS.

A NEW VAGINAL 'PORTE-TOPIQUE.'

At the sitting of the French Academy, held on May 19, M. Delisle laid before the meeting a new instrument, which he calls 'porte-topique vaginal.' This instrument is manufactured by M. Galante, of Paris, from vulcanised India-rubber, in different sizes. It gives the patient the power of applying with as much ease as she can administer to herself a liquid injection to the vagina and the neck of the uterus, any medicinal substances the medical man may desire to apply locally, such as plugs of wadding or lint, sponges, medicated bags filled with powder,

or poultices; ointments, unguents, and powders of all kinds. The 'porte-topique' thus enables the patient to wear, according to the orders of her medical attendant, all kinds of vaginal topical applications, whether solid, soft, or pulverulent, and even medicated liquids, either on wadding, lint, amadou, or sponge, or held in suspension by a powder or poultice. This topical application made by the patient herself has the advantage of giving her the power of renewing the dressings every day, and even, if necessary, several times a day; whilst now as a rule they are only attended to once or twice a week. The medical attendant is also able to substitute in his prescriptions a powder, ointment, or the application of a plug or bag, for liquid injections; consequently changing the transient and rapid action of a liquid by the sustained action of a permanent topical application.

Description of the Instrument.—Fig. 1, *Stroke* indicating the line according to which the 'porte-topique' is divided throughout its whole length into



two valves. *VV*, the sheath; furnished at its neck with a groove, in which is placed an India-rubber ring, *a*, which, from its elasticity, keeps the valves together. *e*, Stopper closing the opening of the sheath, *p*, and into which the stem of the piston, *t*, slips.

Fig. 2. Position of the hands whilst using the

instrument. The left hand, *g*, holds the instrument whilst the right hand, *d*, works the piston.

Fig. 3. Position of the instrument whilst it is being charged with the medicinal substance.

Fig. 4. Arrangement of the instrument to attach the string, *c*, of a plug, bag, or sponge, *s*, to the opening in the piston.

REVIEW.

Arrangement of Houses. A Paper read before the Belfast Architectural Association, January, 1874. By HENRY MAC CORMAC, M.D.

The common saying that the beautiful is not the useful is here virtually derided, for the pamphlet before us combines the æsthetical and the practical in a highly satisfactory manner.

Under each of the heads of air, water, sewage, light, warmth, convenience, and grace—the satisfactory treatment of which may be considered as the seven standard tests of the seven architectural orders—a few sensible remarks are grouped together. The paper is merely suggestive in character, yet contains hints which no one can afford to neglect if they desire a well-arranged, sufficiently lighted, properly drained, and artistically treated residence. According to the writer, the architect is often as ignorant as his client as to what, for example, constitutes good ventilation; and upon this subject, and upon that of heating, he has something noteworthy to say. It is a pamphlet with which no architect can find fault, and if our pupils of the house-constructing professions were made to translate it into another language, and back again into English, without the aid of the original, they would have impressed upon their memories what would benefit them throughout all their after life. We want more of these papers from the pens of our competent medical men, for they are best able to gauge the shortcomings of the houses which they visit. The physician, the artist, and the engineer, will never be discoverable to perfection in one man, but the powers of criticism in each should fairly be found in the architect, if not as well in the master builder.

MISCELLANY.

THE Chair of Pathological Anatomy in Vienna has, it is reported, been offered to Professor Cohnheim, of Breslau.

PROPAGATION OF FEVER.—We take the following striking passage from a 'Report on the Sanitary Condition of the Rural District of Aston Union,' by Dr. Hickinbotham, Medical Officer of Health: 'Children are daily sent to school whose brothers or sisters are "down with fever." I have known often the body and bed-linen of a patient suffering from contagious disease sent to the public washerwoman without the slightest attempt at disinfection, and, on the other hand, I have known laundresses have, at the same time, a house full of scarlet fever, and of clothes to be sent home and worn by half the neighbourhood.'

OVERCROWDING.—Medical officers of health and inspectors under the Public Health Act have been much hampered by the belief that, so long as the inmates consisted of one family, there was no legal remedy. The opinion is, however, expressed in a communication from the Local Government Board to the Rural Sanitary Authority of Bedford, that proceedings can be taken under clause 1 of section 19 of the Sanitary Act, 1866, although the house complained of is occupied only by one family. If this prove to be so, it will be an instrument of great sanitary and moral power in the hands of the local authorities.

USE OF ANILINE FOR COLOURING SAUSAGES.—E. Reichardt (*Medico-Chirurgical Review*), points out in a paper that the manufacturer, in order to give colour to inferior soluble matters used for sausages, sometimes adds

aniline to represent the colour of the blood. Sausage-meat thus tinted is charged with a substance which, habitually consumed, would prove very injurious to the health of the consumer, and in addition it may admit arsenic into the system as an accidental impurity of the aniline. To detect the fraud the meat should be finely minced and then digested with a mixture of alcohol and ether. In this solution the aniline, if it be present, will be dissolved and will give a tinted solution. Blood-colouring matter, on the other hand, if it alone be present, will not yield any soluble colour-stuff to the solution.

CONTAGIOUS DISEASES ACT.—Under this head we read the following in the recently published annual report of the health of the navy. The continued beneficial influence of the operation of the Contagious Diseases Act on the force at the various home ports is now so fully recognised by medical officers, that they have almost ceased to make any direct allusion to it, accepting it simply as a well-established fact. Whenever it is referred to, it is mentioned in the highest possible terms, and the only regret expressed in connection with it is that the Act is not more extended in its application. A large proportion of the disease that exists in protected ports is readily traced to importation from unprotected districts; and if these could only be reached by legislation strictly carried out there appears to be little doubt that the more destructive forms of disease might be almost altogether stamped out. The staff surgeon of the *Indus* at Davenport remarks, 'The number of cases of syphilis, both primary and secondary, have been very few; and the Act for the protection and examination of these poor creatures still continues to flourish and work good works. Regardless of its enemies and opponents, it still protects us from an overwhelming number of cases of disease.' On the other hand, in alluding to an unprotected port, Hull, the staff surgeon of the *Audacious* remarks, 'The port of Hull is the origin and cause of nearly all the cases (of syphilis), the town being a filthy focus for foul prostitutes, and native and foreign seamen, reckless, dissipated, and degraded. . . . Had the great benefits conferred by the useful Contagious Diseases Act on the more fortunate towns been extended to this port, we should not have to chronicle the fifty-four cases of secondary constitutional disease, which testify to an equal number of ruined constitutions, with the moral depravity, and consequently numerous, but necessary, punishments which must invariably follow.'

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The London Medical Record.

WEDNESDAY, JULY 15, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

GOODELL ON DISEASES OF WOMEN.*

In this short practical treatise on the treatment of prevention of uterine affections the subject is divided into two parts, treatment and prevention. A considerable portion of the latter part is addressed to the lay community, as the author considers that many uterine complaints are due to the Moloch of Fashion.

Instruments.—For the successful and intelligent treatment of ordinary uterine affections, the writer believes the following articles to be absolutely essential. A short bivalve expanding speculum with blades only $3\frac{3}{4}$ inches long; as by stretching the uterine end of the vagina the cervix is brought down nearer to the field of vision, and if required within the reach of the index finger. Two glass (Fergusson's) specula, one $5\frac{3}{4}$ inches long with smaller aperture $1\frac{1}{4}$ inch in diameter; the other 5 inches long, with an orifice $\frac{7}{8}$ of an inch in diameter. Two applicators of aluminium wire with an adjustable handle; an uterine tenaculum-sound, repositor, dilator, volsella-forceps, speculum-forceps, and a gutta-percha uterine syringe, with a long and flexible nozzle. The use of these instruments will be indicated in speaking of the affections for which they are employed. Aluminium is recommended for the applicators, as being flexible and not acted upon by the various corrosive agents used in uterine therapeutics.

Local Treatment.—The following agents are required: pure liquid carbolic acid (Calvert, no. 4) or a saturated solution of the crystals; a solution of nitrate of silver (one drachm to the ounce of glycerine), a saturated solution of tincture of iodine; fuming nitric acid; and a solid stick of nitrate of silver. With the exception of the last, each caustic is applied by means of a film of cotton-wool wrapped evenly round the applicator for about two inches of its length. This probe thus covered is dipped in one of the liquids, and is always carried, through a speculum, up to 'the fundus of the uterus whenever the internal os permits its passage.' In the majority of cases, this can be done if the anterior lip of the cervix be hooked down, which steadies the womb and straightens it out. The reasons assigned for cauterising the whole of the mucous tract are as follows. 1. If the mucous coat be alone involved, the symptoms often fail in showing how far the disease has extended. 2. Through absence of submucous areolar tissue, inflammation of the membrane must sooner or later involve the parenchymatous structure, and this is to be avoided at all hazards. 3. The passage of the armed applicator through the internal os is accepted as evidence that the disease is not limited to the

cervix. 4. This method, although empirical, is an error on the safe side, judged by the results. Nor is the bolder plan more dangerous than the ordinary limited one. The writer states that out of a yearly average of this kind of over 1,500 hospital cases without his private patients, he has not heard of a death from this cause. In fact none but slight and manageable attacks of perimetritis have followed, and these very seldom. Even sponge-tents have been introduced in the out-patient department, and in only one instance, and that in a woman with fibroid tumour, did any mischief result; in hers the tents were introduced in her own home. And in this case the mischief is attributed more to the repeated intrauterine examination. The most successful gynaecologist he believes to be the pluckiest. Should any pelvic inflammation arise from uterine treatment, from 16 to 24 grains of quinine are given during the twenty-four hours, quarter-grain doses of morphia to relieve the pain, and with a rapid pulse 60 to 80 grains of bromide of potassium. The abdomen is painted with a strong solution of iodine. With the exception of fuming nitric acid, the liquid applications are made once a week, and frequently changed. To be sure that the cauterisation is complete, it is necessary to repeat the application two or three times until the uterus is irritated to contract on the probe. When the cervical canal is not very patulous, it is advisable to enlarge the canal with the dilator. Fuming nitric acid should not be used unless the cervix be very open. Immediately after its use the uterus should be syringed out several times with water, and a tampon of cotton-wool, well saturated with water, left in contact with the os for twelve hours. Ten or fourteen days afterwards a milder caustic should be applied. In rare cases a second application of the strong acid may be found necessary, but a month at least should intervene, for fear of closure of the canal.

In menorrhagia, from congestion or subinvolution, or where the uterus is too tender to bear the pressure of a hard pessary, or in obstinate leucorrhœa, it is of great benefit to carry the application to the body of the uterus. The author is very partial to this application, and states that he has observed no worse symptoms arise from it than after milder ones.

In one case severe perimetritis followed the application of the solid stick of nitrate of silver to a granulating os. Its prolonged use is apt to produce a hard, gristly cervix, or a contraction, or even a closure of the canal. When the os is everted or very patulous it may be used. An easy method is to heat the aluminium probe, and then dip it into nitrate of silver; a thin film will be formed, and the probe can be carried up to the body of the uterus. This application is very liable to produce uterine colic. In stubborn cases of amenorrhœa, advantage may be taken of its tendency to excite hæmorrhage.

Respecting the use of the ethereal tincture of iodine, there is a fear of the vapour passing up the Fallopian tubes and into the peritoneal cavity if it be applied to the cavity of the uterus.

Vaginal injections should not be omitted during these applications. A very excellent one is a saturated solution of chlorate of potash; suppositories of tannic acid, and acetate or iodide of lead, are considered still better.

In obstinate congestions, drachm-doses of the liquid extract of ergot should be used, either as suppositories *per rectum* or as starch-clusters. Suppositories are preferred to vaginal injections, as the

* Reprint of articles published during January and February, 1874, in the *Philadelphia Medical and Surgical Reporter*.

latter are carried up into the uterine cavity either by capillary attraction or reversed peristaltic or suction action of the uterine fibres. Caustic applications should not be made more frequently than once a week, and only continuous about four to six times. There should then be a rest of nine or ten weeks; this affords an opportunity for impregnation. Conjugal relations should be moderate.

Local Depletion should be always performed whenever the cervix is crimson. Through the difficulties attending leeching, puncturing with a Butler's spear-pointed scarificator is recommended. The puncture should be from one-eighth to one-fourth of an inch deep, and a slight twist of the hand should be given, to enlarge the opening, when withdrawing the instrument. Before repeating the operation a short time should be allowed to elapse, as sometimes the bleeding may be excessive. Whenever the uterus is hypertrophied, or the uterus is tender, or unable to bear the pressure of the pessary, or when the pelvic pains resist ordinary treatment, or in flexions or dysmenorrhœa, depletion will be found beneficial. Its repetition at intervals of a week or two, until the symptoms are relieved, will be found sufficient.

General Treatment.—It is a cardinal rule that iron should be given unless contraindicated. To this may be added, when the uterus is hypertrophied or congested, ergot, quinine, arsenic, and bromide of potassium. Whenever cod-liver oil or syrup of iron has been tolerated, the author has invariably found that the case did well. Several excellent elegant formulæ are given. Patients should never be allowed to dwell on their ailments. The corset should be discarded, and the clothes supported by shoulder straps.

Retroversions and Flexions.—Hodge's pessary is used when there is no undue lengthening of the womb. Ring-pessaries are condemned as tending to overstretch the vagina laterally, and so impair the tonicity of this great supporting column of the uterus. They are also very liable to eat into the vagina and rectum. Again, when made of inferior India-rubber they will crack, and, through rusting of the wire, spring open and cause much injury.

A modification of Hodge's pessary, made by narrowing the anterior part, and bending it so as to be at right angles with the shaft, is most strongly recommended in retroversions or flexions. Should the body of the womb be too tender to bear the hard India-rubber pessary, an air one is advised, coupled with local depletion, and the intra-uterine application of carbolic acid as an anæsthetic, together with a warm douche. The pelvic pains are much relieved by a suppository at bed-time of a grain of morphia and two grains of belladonna. An occasional stretching of the utero-sacral ligaments by the repositr will be found advantageous. In redressing an uterus, care should be taken to push it up laterally, so as to avoid the sacral promontory, which may be done *per rectum* or *per vaginam*, pulling the cervix down at the same time with the volsella. In retroflexion, the uterine dilator appears likely to be of much benefit in obstinate cases.

The writer speaks in the highest terms of praise of the volsella. It is used for redressing or straightening out any version or flexion; in versions the reverse lip is seized to the name of the version, in flexions the same lip, as its object is to stretch out the side flexed. For applying sponge-tents it is of great advantage, and when the cervix is dilated the uterine

cavity is rendered more easy of exploration than by the usual method of suprapubic pressure, which is always painful, and in fat women almost impossible.

Anteversions and Flexions.—As these conditions are more or less the normal ones, it does not follow that certain hysteric or congestive phenomena are to be attributed to these causes, and the patient subjected to uterine treatment, when it might be only moral or a constitutional, or at most, ovarian treatment that was needed. The ovaries are believed to be too frequently overlooked, and their paramount importance in certain conditions disregarded. Without committing himself to the theory that hysteria is primarily or secondarily always an ovarian expression, the writer considers it pre-eminently an affection of the unmarried, newly married, or sterile. The diagnosis is not always clear; but when there is dysmenorrhœa and the uterus is tender or congested, and in addition the marriage is unfruitful, hysteria and other subjective symptoms may be referred to the uterus proper as the primary cause. The vesico-uterine folds should be stretched out occasionally, but not oftener than once a week. Tents of sponge, of lamina, or of slippery elm-bark, may be used as auxiliaries coupled with local depletion. In this affection pessaries are not well borne. Thomas's anteversion pessary may act in certain cases well, but of all forms the inflated ring-pessary will be found most successful. It acts by pushing the fundus off the bladder. Its great faults are over-distension, collapsing, and becoming offensive.

Intrauterine stems are not encouraging in their results; occasionally they set up much inflammation; their use requires so much watching and anxiety that the author has almost discarded them. Hewitt's modification of Hodge's pessary has given more than once great comfort. The chief means of cure is the rapid dilatation of the cervix.

Rapid dilatation of the cervical canal, a method which, in Dr. Goodell's opinion, bids fair to revolutionise the treatment of many uterine disorders, is performed by him by means of an instrument not unlike a strong pair of dressing forceps, but so constructed that a closing of the handles causes a divergence of the blades. Preference, however, is given to Dr. Ellinger's (*Archiv für Gynäkologie*, vol. i. part 2, 1873) as a more perfect instrument; from the length of the blades being limited to two inches, it is free from the danger of slipping into the uterine cavity, through which great mischief might arise.

The anterior lip of the cervix is seized by the volsella, and the dilator is passed up at first as far as it will go. Upon gently stretching that portion, the stricture above so yields that, when the instrument is closed it can be made to pass up higher. By this means a canal, barely admitting the finest probe, may be widely dilated in sixteen minutes. When the cervix is cartilaginous considerable force is required, and the constrictor fibres may be audibly heard to rupture. It is a painful operation, and may require the patient to be anæsthetised, but as a rule this is not done. The woman feels sore for a day or two, but no bad results have been seen to follow. The canal does not return to its usual angular or contracted condition; as in all elastic bodies, increase in width diminishes the length, so the cervix becomes shortened and widened, and the plasma thrown out by the submucous lesions tends to stiffen and thicken its tissues.

A solution of chlorate of potash or strong table salt should be injected warm every three hours,

during the waking hours, so as to prevent the secretions from becoming septic, and also to aid the more rapid expansion of the tents. A still safer plan is to introduce the tents the day before the catamenial flow, as the oozing of the blood through a part of the tent washes away the secretions and keeps them from becoming foul.

W. C. GRIGG, M.D.

(To be continued.)

MENDEL ON THE INSANE POPULATION OF ENGLAND AND OF PRUSSIA.*

The author's chief object is to consider the relative proportions of the insane to the population in each country, and of those under treatment in asylums or remaining in their own houses. In England, on January 1, 1873, there were 60,296 insane persons, or 1 to every 387 of the population, *i.e.* 2.58 per thousand. Prussian statistics are very meagre, but, from results obtained, probably of the year 1871, it appears that there was 1 insane to every 468 of the population, or 2.13 per thousand. The proportion in different provinces was as follows:—in Hanover 1 to 354, in Hessen-Nassau 1 to 348, in Saxony 1 to 534, in Brandenburg 1 to 495. In Berlin itself there is 1 to 820, but a great number, chargeable to the metropolis, are boarded out in provincial asylums. It is pretty certain that there is no real difference in the percentage of insane in the two countries, the population being about the same; and yet in Prussia 7,662 insane persons have been omitted who should have been counted, so bad is the system of registration. The next point is to consider where the insane in the two countries are treated. On January 1, 1873, there were in Prussian asylums 11,460 insane; whilst of the 52,634 insane in December, 1871, as many as 41,174 were either at home or in other families; but in England on January 1, 1873, there were 52,203 in asylums, and only 7,493 with their relatives at home; so that in England 1 out of 442 of the population is sent to an asylum, but in Prussia only 1 out of 2,150. Taking away those whose circumstances are good, and enumerating only those in pauper asylums, it appears that in January, 1873, of 616 persons in this country 1 was in a pauper asylum, and in Prussia 1 out of 2,859! This disproportion appears about the same when Prussia is compared with France. Mendel, however, is of opinion that, even if all the conditions and opportunities that exist in other countries were in vogue in Prussia, there would still be a large excess of those detained at home, because, firstly, the population is more thinly scattered, and hence it is easier for the supervision of an insane person. On examining other countries where the population is very small over a large area, the facts come out as above; thus in Pomerania only one insane is under supervision out of 6,849 inhabitants, and in the Rhine provinces one out of 2,001. The second reason for the difference, as far as Prussia goes, lies in the difficulties existing in getting a pauper into an asylum, difficulties founded not only on the large number of formalities to be gone through, and questions to be asked, but also on the dread of the expenses which are entailed on the parish. As a consequence, it is not easy to get a person into an asylum unless he have set fire to something, or have attempted people's lives. Lunier has

shown that in France, since the late war, motives of economy have influenced the numbers retained in asylums at the public expense. Another reason, apart from the difficulty and expense, lies in the fact that the asylums are overcrowded, and hence hundreds are kept at home in conditions disgraceful and injurious, whilst recent cases cannot be admitted and hence become chronic or incurable. The terror of asylums still existing in many persons' minds is a great impediment to the early reception of cases; but, as the advantages of the non-restraint treatment and of the humanity shown in these buildings become better known, such scruples are more likely to disappear. Berlin may well set the example to the rest of Prussia, for out of 1,339 of the population there is only one in an asylum.

In eight years the increase in the numbers placed in Asylums has been 19 per cent., whilst the population has only increased 5 per cent. The excess is due to the reckoning of old cases, who are transferred to the asylum from the families in which they were located, because it was no longer possible to keep them. In Prussia there are 1,490 private patients in public asylums, and Dr. Mendel remarks that it seems wrong in the face of the universal complaint of the overflow of asylums, and of the great need of protection of pauper patients, to fill asylums with these private patients.

Dr. Mendel next considers the modes of treatment, medical and otherwise, in vogue in England and Prussia, not regarding the workhouses. In both there is still need (as the reports of the commissioners show), of improvement in the diet, attendance, and medical treatment. In the English county asylums cleanliness and neatness are supreme, and these are only in any degree rivalled by the Swiss asylums. Not only does this apply to the corridors and rooms, but to the dress of the patients. Germany is far behind in these respects, owing chiefly to the use of old buildings for purposes for which they were never intended. However good the administrative arrangements may be in England, the same cannot be said for the medical treatment. To Dr. Mendel it seems that knowledge of the individual patients seems wanting, but he hastens to say that the blame does not rest with the medical men, and that any one placed in their position would, however conscientious he may be, act in the same way. The chief reason lies in the small number of medical men to the patients, the proportion being about half those in Germany; and whilst the latter are not troubled with clerk's work, the former are encumbered with the filling up of forms, etc., and their time is taken up by a considerable number of visitors of different degrees of authority, such as Committees, Lunacy Commissioners, etc. It is to this overcrowding with work and the scarcity of medical element that much of the restraint still to be found is due. He points to the fact that of late years restraint had made a fresh start in the largest English Asylum, Colney Hatch, and then gives in detail the remarks of the Commissioners in Lunacy on its abuse and Dr. Sheppard's replies. He is in favour of 'seclusion,' and thinks that it often works better than medical sedatives. As to the amusements, concerts, etc., which are so largely supplied by us to the patients, he thinks them injurious, and still more, that it is a positive wrong to keep a 'large and spacious hall set apart for these things, where corridors and passages are utilised for persons who should be otherwise accommodated.' All these entertainments, Dr. Mendel holds, are for the attendants and

* An Address given before the National Science Assembly at Wiesbaden. (*Archiv für Psychiatrie*, 1874.)

the invited guests, the public, since they are unnecessary for the curable cases, and are not comprehended by the chronic and incurable. These remarks, however, do not apply to such amusements as billiards, bowls, etc., which serve a really useful purpose. The work done in the different departments in the Prussian and English Asylums is compared, favourably to Prussia. The most important phrase is the concluding one, viz. :—that for scientific and rational treatment a positive knowledge of each case is necessary, and that the English system is incomplete in this particular and behind other countries, inasmuch as the medical element is too small and cannot exercise its proper functions because of the mass of lay work imposed on it.

[Dr. Mendel is correct in his remarks about the insufficiency of medical men to the numbers in this country, but we think he scarcely does justice to the committees. It is important, indeed the public would not be satisfied otherwise, that the great powers of expenditure and liberty over the persons of the inmates which are confided to the Medical Superintendents should be supervised and checked. No man is infallible, and there is much less risk of mistakes when men of large intercourse with the world are introduced as the cushion between the medical element and the public. The committees, as a rule, are composed of men who give a deal of time to the affairs of the institution and accept much of the responsibility, and many superintendents are very glad to have the responsibility of such items as making contracts, forming settlement of legal claims, &c., taken off their hands. Besides, few medical men have the knowledge necessary to conduct the administrative affairs of a large asylum. It has long been a reproach to the medical superintendents of asylums in this country that they are stewards rather than physicians, and Dr. Mendel seems to have been imposed upon by some one who misinterprets the true position of medical authority in asylums, and who would, in his anxiety to usurp every function of power in the place, leave for himself still less time than he now has for treating patients, and for making those scientific investigations for which asylum physicians are not, as a rule, noted.—*Rep.*]

T. C. SHAW, M.D.

EPIDEMICS OF CHOLERA IN FRANCE.

(Continued from page 419.)

Here arises the question, What is cholera? Whence comes it? What is its origin? How is it developed? Cholera, such as in former times prevailed in France, is a new disease in Europe, and *sui generis*; nor does the history of epidemics afford an exact description of the disease as it has been seen there. Notwithstanding the identity of the name with epidemic cholera, the sporadic is essentially different from that disease, both in its nature and in its great severity. The one is deadly, the other benign; the relative severity of the two being compared to the sting of the Indian scorpion and that of Europe. The sporadic form—the product of causes easily appreciable, as for example, cold drinks during the hot season—is altogether of an individual character, and by no person believed capable of being communicated by the subject of attack to another. The epidemic form is often developed without the presence of sufficient appreciable cause, affecting a large number of persons and

places, under hygienic conditions the most diverse, and often transmitted from one individual to many others.

1. It is universally admitted that India is the home of the disease, especially the districts near the large rivers, as plague prevails in the delta of the Nile, and yellow fever at the mouths of the Mississippi. According to one set of pathologists, cholera is the product of a special miasma originating in India, transported into Europe across continents and seas by atmospheric currents; according to others, cholera is produced on the spot where it shows itself, being engendered by accidental local conditions, such as are called epidemicity, and multiplying by the action of special causes on the mass of the population; a third class consider that cholera, originating in India under particular conditions of climate, propagates itself to long distances, transported by man, and multiplying by successive transmission, favoured by accidental causes.

In opposition to the first theory, various objections of great weight are adduced. The exhalations from the Pontine marshes do not produce fevers at a great distance from their source. Let us therefore admit for the effluvium of cholera a power even a hundred times greater, it would be insufficient to account for its transport to a distance of four or five thousand leagues from its point of origin. Is it admitted that the miasmata become multiplied in the atmosphere? How are we to understand that effluvia, arising in India in 1817, and carried by the atmosphere, required fifteen years to traverse the 2,500 leagues which separate the banks of the Ganges and those of the Seine? What slowness, when hurricanes traverse the breadth of France in one day! How does it happen that these miasmata propagate themselves in different directions?—that from the Bay of Bengal they extend eastward to Sumatra, Borneo, and China; southward to Ceylon, Malabar, and Mauritius; northward to Tartary; north-west to Persia and Egypt, and thence across Russia and Europe? How are we to explain the circumstance that, in 1832, cholera passed from Germany to London without affecting Belgium; passing also from London to Paris while strong north-east winds prevailed, and with a clear sky? It is said in reply, that in the higher strata of the atmosphere there are currents which proceed in an inverse direction to those that are apparent. The supposition is gratuitous. And according to the committee, the epidemic was carried by travellers, fleeing from their foggy country, already infected, to enjoy the advantages of Paris until that time free from the disease. How also are we to explain that never, in any country, has the extension of cholera coincided in a definite manner with the direction of the prevailing winds? How are we, according to the theory of transport by the atmosphere, to account for the singular tendency of the disease towards certain great cities in different epidemics? Thus, in 1832 Calais was first invaded, then Paris: in 1849, Douai, and immediately afterwards Paris: in 1853, the department of Aisne, and Paris within a few days: in 1865, Marseilles and Toulon, then Paris—always Paris. What is the situation of Paris in regard to all currents of wind from east, north, north-east, and south? Is it not rather that there is always a stream of the population itself towards the great social centre of France. It has been stated that cholera has often appeared to extend along the course of streams and rivers, and it has been supposed that this arises from the contamination of the air from the beds of those streams and

rivers. But experience teaches that cholera as often ascends along the course of a river as descends by it. Moreover, is this to be explained by the circumstance that habitations are generally most thickly placed along the vicinity of rivers? If the epidemic were conveyed by the atmosphere, it might be supposed that the influence would descend suddenly upon a number of places in the interior of a country like a shower of hail. Instead of doing so, it invariably enters from the borders, most frequently from a sea-port. How again, supposing that it were conducted in the form of a miasmatic cloud, is it to be supposed that that cloud would remain during three months extended over a city, as for example in the case of Amiens? How, on the same hypothesis, are we to account for the epidemic being limited to one district, one street, or even one range of buildings?

2. Against the theory according to which cholera is generated upon the spot where it appears, various objections are adduced. The precise causes and conditions under which under such circumstances the disease is produced, are left undefined. Are its causes looked for in special conditions of the atmosphere of the locality? The conditions showing the prevalence of an epidemic are precisely similar to what they are in its absence. Is it high temperature? In 1846 and 1863 the heat was 36° and 39° Cent. (97° Fahr. and 102° Fahr.); yet no case of cholera occurred. If a high temperature favours the development of cholera, it cannot be looked upon as its cause. In the last epidemic at Cherbourg, the greatest intensity of the disease occurred in the months of January and February, 1866; and during 1830-31 it prevailed at Moscow in the winter season. Is humidity or dryness the cause? Dryness was extreme in 1846, humidity in 1852, yet cholera did not prevail in either year. Is it variations in the state of atmospheric electricity? If so, in what are they different from such as take place many times without the appearance of cholera? Nothing positive on this point has been ascertained. Are the causes to be found in a changed condition of the constituent principles of the air, a diminution of ozone? Decrease of ozone occurs every summer, and the supposed changes in the constituent principles of the air have never been detected by analysis. Do the causes exist in the constitution of the soil? If so, the soil of France has undergone no change during the last thirty-five years—has been subject to no cataclysm. Have we not also seen cholera prevail in regions having the most various geological constitution? Low, damp or marshy alluvial localities near marshes, or infected streams favour the development of cholera, but are not sufficient always to produce it. Thus in some places, localities seemingly the most unhealthy have been respected, while others, to all appearance most healthy, have been ravaged by it; in the same department, arrondissement, or canton, certain villages ravaged in 1854 had escaped in 1849, and nine which had been free in 1849 and 1832, suffered severely in the later epidemics. Such conditions are very secondary. They may, and do have an influence upon the multiplication of cases of the disease, but none of these conditions, nor the union of several, have ever given rise to the disease. Do we invoke a combination of hygienic conditions, such as want of sufficient space, clothing, air, light, or food, bad water, excesses of all kinds, mental depression, overcrowding, and so on? All these favour the development and multiplication of the disease, but

no one or combination of them can produce the disease. To go no farther back than 1792, have there existed no bad conditions since then? Had we not at the beginning of this century, throughout Europe, grand movements of armies, engagements, and battles, notably in 1813 and 1814; great military disasters, precipitate retreats, with their fatigues and privations, endured by coalesced Europe, great dryness, great humidity, scarcity, famine, typhus, and other evils?—yet in the midst of all these no case of cholera occurred.

3. As to the theory that cholera, originating in India, was imported and propagated by man, its partisans present the disease as following the great lines of communication by land and by sea. In the first great invasion, for example, they trace it from India, where it is said to have sprung up in 1817, advancing across the continent of Asia by the route of caravans and armies, traversing in succession Prussia, Russia, the north of Germany, and reaching France in 1832. In the latest invasion, on the contrary, it was observed quitting India in the early months of 1865, advancing towards Europe by sea, and reaching Marseilles in June, that is, less than six months from the time of its starting. On the first occasion it took fifteen years to reach France. In the latter it advanced with the rapidity of vessels, requiring only a few months to arrive from Calcutta and Bombay at Mecca, then at Cairo, Alexandria, the shores of the Bosphorus, Catalonia, and Provence. There exists no example, say the advocates of this theory, of the arrival of cholera from one continent to another more rapidly than the progress of travellers, and from a continent across sea more rapidly than the rate of steam-vessels.

When the invasion takes place by land, it is indifferent by what point of the frontier the cholera penetrates. When it arrives from beyond sea, as from Alexandria in 1865, it first arrives in the commercial ports, as happened then in respect to Constantinople, Ancona, Barcelona, and Marseilles, all of which were affected before other places nearer the point of departure. The explosion of the disease also took place on all occasions soon after the arrival of a vessel from the infected country. The partisans of importation, moreover, argue, in regard to the preservation of certain islands and certain establishments, both public and private, which had for a time interrupted all communication with reported localities, or prevented the approach of all vessels arriving from suspected places. Thus, Sicily was preserved in 1865 by receiving no vessel arriving from affected localities; so also Batna, in Algeria, by means of posts of surveillance, which isolated it in the middle of the country ravaged by the epidemic.

In support of the transmissibility of cholera from one person to another, the advocates of the theory adduce many instances where the arrival of one or several persons affected with cholera in a district, until then free from the disease, was immediately followed by a development of the disease among those who had received or attended them; on the other hand, the opponents of that theory only see in these events the occurrence of simple coincidences, or explain them by the intervention of epidemics, which really means *nothing*. Others adduce numerous opposing facts against the theory, giving, as proofs of the non-contagion of cholera, the cases of many persons that had attended patients, slept in their beds, and yet did not take the disease. To this the partisans of transmissibility

reply, that in the instances alluded to negative facts cannot destroy the value of those of a positive kind, as where the transmission of the disease had the character of evidence. At the same time the non-contagionists, while denying the facts brought forward by their adversaries, claim for those adduced by themselves in refutation, the character of being also positive. The partisans of the theory of transmissibility, however, do not assert that cholera is always thus communicated. They admit the necessity of special conditions, without which the transmission does not take place, any more than does that of smallpox, scarlatina, diphtheria, and so on; conditions which, as in the case of typhoid fever, depend partly upon the intensity of the morbid principle, its condensation in a limited locality, the duration of its action, &c.; partly upon the powers of physical and moral resistance possessed by the individuals exposed to contagion, and their degree of susceptibility.

The partisans of epidemicity deny, as a gratuitous supposition, this condition of special aptitude deemed by their adversaries essential for the transmission of the disease; but are they not themselves obliged to admit the existence of a partial predisposition in those attacked by the disease, and also an individual peculiarity in those who resist? How otherwise are we to account for the epidemic influence hovering over a locality only attacking some individuals, and not all? The contagionists believe that the hundreds of instances in which communication has not been traced do not invalidate a single fact of true transmissibility; thus, it is observed in the report, the cases of three medical men, whom they name, as having contracted fatal attacks of diphtheria from patients, prove the communicability of the disease, although many others who attend patients suffering from it altogether escape. One of the arguments long used against the communicability of cholera is the large number of medical men who in the first epidemic pronounced against it. This has, however, been abandoned in subsequent epidemics, and shown to have no value. Even in 1832 there were some who believed in the contagion of the disease; they became more numerous in 1849, became predominant in number in 1854, and after 1865 there remained only a few opponents in the field. To refute the communicability of cholera, an argument is drawn from the small number of 'sisters,' students, and *infirmiers*, who became attacked with the disease. It may be said, in reply, that if the number of medical men and sisters is less considerable, this is to be explained by the moral power, and consequent resistance of these, to their sentiment of duty, and to their habit of struggling with disease; others refer this relative exemption to the solidity of their faith and their Christian resignation. It is asserted, on the other hand, that this pretended exemption is only an error. In 1849, at the Salpêtrière, the director, two *internes*, several attendants and *infirmiers*, succumbed, while a number of the medical men and *employés* were severely attacked. In 1865 eleven medical men died of the disease at Ancona, three at Paris in 1866, three medical men and thirty sisters at Amiens in the same year.

It still remains to explain the occurrence of many cases where persons have been struck at the same time and at places distant from each other, without having had any communication with other subjects of the disease, when there could have been no transmission by contact. According to the partisans of

transmissibility, if cholera requires immediate contact with a patient suffering from it to be thus caused, it is communicable to a greater or less distance, according to circumstances, by the emanations from patients.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

FOSTER ON ENDOTHELIUM AND EPITHELIUM.—Dr. Michael Foster (*Quarterly Journal of Microscopical Science*, July, 1874) observes that the word 'endothelium' has been recently introduced into histology, and the use of it has rapidly become common, if not general. The speedy acceptance of a new term may, in many cases, but not in all, be taken as an indication that something of the kind was wanted; and the already frequent use of 'endothelium,' both by Continental and English histologists, would seem to show the need of some other phrase besides 'epithelium.' Nevertheless, there are cogent reasons why the new term should not be allowed to take any further root.

In the first place, Dr. Foster says, its etymology is of the most grotesque kind. This is of course an objection of secondary value; but still it carries some weight. When a term has come into daily use, with a clear, well-defined meaning attached to it, it does not matter much what its etymology is or how it is spelt, except on historical grounds. Many terms become so altered in their meanings before they finally acquire a permanent application, that the chief interest in their etymology is confined to the light it throws on the ideas of the man who first introduced them. This is the chief reason why new terms should be etymologically correct, in order that future inquirers may read back through them into the minds of earlier observers. When a word is etymologically pure nonsense, this is apt to become impossible. Such is the case with endothelium.

It appears to have been first introduced by His, to designate the kind of epithelium (pseudo-epithelium, '*unächte Epithelien*') which is found lining the vascular, lymphatic, and serous cavities of the body, in contradistinction to the real epithelium of mucous membranes. He says (*Die Häute und Höhlen des Körpers, Akademisches Programm*. Basel, 1865, p. 18):

'Alle die Zellenschichten, welche den Innenräumen des mittleren Keimblattes zugekehrt sind, zeigen nun aber unter sich so viel Gemeinsames und sie differiren von der ersten Zeit ihres Auftretens auch so erheblich von den Zellenschichten, die aus den beiden Gränzblättern hervorgegangen sind, dass man, im Interesse physiologischen Verständnisses wohl thun wird, sie von diesen durch eine besondere Bezeichnung zu scheiden, sei es, dass man sie als *unächte Epithelien* den *ächten* gegenüber stellt, sei es dass man sie *Endothelien* nennt um mit dem Wort ihre Beziehung zu den innern Körperflächen auszudrücken.'

Endothelium is here contrasted with epithelium, so that the latter may be considered as the 'thelium' of free surfaces (whether invaginated or not), and the former as the 'thelium' of internal closed spaces; 'thelium' apparently being taken to mean 'a layer or layers of cells.'

Now, what is the derivation of 'epithelium'? I am indebted to Dr. Sharpey for the following account.

He says, in a letter to me:—“*Epithelium*, or rather “*epithelida*,” and especially “*epithelia*” (first declension), was introduced by F. Ruysch. In describing a preparation of the face of a child finely injected, he refers to the cuticle over the red part of the lip (prolabium), and says, “I cannot call this ‘epidermis,’ seeing that the subjacent tissue is not skin, but a different substratum covered with sensitive (nervous) papillæ, which are finely injected.” He then goes on to say that as the cuticle lies on papillæ he will call it *epithelida*, or *epithelia*, from $\epsilon\pi\iota$ and $\theta\eta\lambda\acute{\eta}$, “papilla” or “mamilla,” and he adds that for the same reason he calls the inside coating of the cheeks by the same name. The original is as follows (Ruysch, F., *Thesaurus Anatomicus*, III. no. xxiii. p. 16).

“... Nulla subest huic integumento cutis, ergo epidermis dici nequit, quamvis analogiam summam et connexionem cum illâ habet comperi probalia constituta esse ex meris papillis non cutaneis cutis enim hic reverâ deest) sed papillis nervosis; itaque integumentum illud supradictum potius epithelida dixerò vel integumentum papillare prolabiorum, quod reverâ nil est nisi efflorescentia seu expansio extremitatum papillarum.”

‘In *Thesaurus Anatomicus* VI. no. cxv. p. 49, he says, “Anterior pars prolabii inferioris—*epithelia* adhuc est obducta.”’

From this it is evident that epithelia (changed in course of time into epithelium, just as platina has become platinum), means ‘that which covers or is upon a papilla,’ and consequently endothelium means ‘that which is inside a papilla.’ The extension of the phrase epithelium to the cellular covering of such parts of the corium as are destitute of papillæ may be easily allowed, but it does seem a most daring defiance of all meaning of words to apply the phrase ‘within the papilla’ to the cells coating surfaces of which one great characteristic is that they are devoid of papillæ! There seems to be something attractive about ‘thelium’ that tempts writers to make use of it. Already endothelium has given rise to a new ‘ectothelium,’ and probably after a few years ‘thelium’ will become a sort of histological maid-of-all-work, with as many prefixes as there are kinds of cells.

In the second place, there are objections to the use of endothelium not etymological in their nature.

The peculiar views of His on the origin of the connective tissues of the body would, if true, afford a strong argument for the use of some special term to denote such kinds of epithelium as were formed out of his parablact. Putting these aside as mistaken, there still remains the question whether it is not desirable to have some distinctive appellation to denote the epithelium which is formed out of the elements of the middle of the three layers of the germ (the *mesoblast* of Mr. Huxley and myself), the word epithelium itself being reserved for the nether layer (or *hypoblast*).

If so, the word endothelium cannot be employed with this meaning, for it would then include structures still called epithelium, and differing in no essential characters from the epithelium derived directly from the hypoblast.

The cells lining the Wolffian duct, and its derivative the ureter, with their branches, would then come under the heading endothelium. Whatever be the exact mode of the first formation of the Wolffian duct, whether by the central solution of a solid ridge, or by an infolding of the lining of the pleuro-

peritoneal cavity, it is lined by cells which are clearly mesoblastic in origin, not hypoblastic nor, as was once suggested, epiblastic.

The case of Müller’s duct is still more clear. This undoubtedly arises by an infolding of the lining of the pleuro-peritoneal cavity. Its epithelium is distinctly mesoblastic in origin. The germinal epithelium which gives rise to the ovaries is also essentially mesoblastic.

If the word endothelium, then, be taken to denote an epithelium derived from the mesoblast, it must be extended to include the epithelium of the Wolffian and Müllerian ducts, and of the parts which are formed ultimately out of those structures. But if these be included, the phrase loses all its practical utility. If they are excluded, all the little meaning it ever had vanishes.

It may be urged that we need a word to denote the epithelium which is found in the vascular and lymphatic spaces. There does not, however, appear to be sufficient reason why the same term should be applied to the whole of this epithelium. As we have seen, its common mesoblastic origin will not justify this. From a structural point of view, three distinct varieties may be recognised in it, viz. the spindle-shaped cells of the blood-vessels and larger lymphatic vessels, the sinuous cells of the commencing lymphatics, and the polygonal cells of the large serous cavities. The fact that the epithelium of the peritoneum is continuous with that of the lymphatics affords no argument whatever for classing them together. We find continuity everywhere. The epidermis is continuous with the alimentary epithelium, and with the urinary and generative epithelium; and the generative epithelium is in turn continuous with the peritoneal epithelium. In short, there is no reason why the cells spoken of as forming endothelium should have a common title, distinct from the general term epithelium.

The introduction of the new term is really a step backwards from, instead of an advance beyond, the old classification adopted by Dr. Sharpey in Quain’s *Elements of Anatomy*. He divides epithelium either physiologically into epidermic, mucous, glandular, vascular, serous, &c., or structurally into columnar, spheroidal, ciliated, tessellated, squamous, &c.

Surely some such nomenclature as this satisfies all requirements, either morphological or physiological, at least for the present.

The chief morphological importance, as far as our knowledge goes, attaches itself to the question from which of the three primary layers any given epithelium is derived, whether from epiblast, hypoblast, or mesoblast; and it is precisely because the phrase endothelium is in this respect misleading that its use is undesirable. Beyond this, it is difficult to see any morphological interest, unless future research should show that in the common mesoblast there are factors morphologically distinct. When that is clearly shown it will be time to invent new terms which may be as lasting and as valuable as ectoderm and entoderm.

For physiological purposes all we need is some system of phrases which shall clearly indicate the individual characters and the arrangement of any group of cells. The few terms, ‘columnar’ or ‘cylindrical’ and ‘spheroidal,’ either ‘ciliated’ or ‘non-ciliated,’ are almost all we want for mucous membranes in general. The word ‘squamous’ sufficiently clearly indicates the general character of an epithelium made up of flattened cells which overlap, as

'tessellated' equally clearly signifies an epithelium of flattened cells fitting into each other at their edges. These are general distinctions. Such special forms as the sinuous cells of the commencing lymphatics or the jagged cells of the epidermis do not need any distinctive general appellation.

We perhaps do want easy terms which shall denote whether the epithelium in any spot consists of several layers, or of one pronounced layer only. The latter might be called *monoderic* ($\delta\epsilon\rho\omicron\varsigma = \delta\epsilon\rho\mu\alpha$), the former *polyderic*.

Epithelium itself would simply mean cells lining a cavity or coating a free surface.

RANVIER ON THE DEVELOPMENT OF BONE-TISSUE.—A note on this subject was read by M. Ranvier before the Académie des Sciences, November 27, 1873.

To study the growth and development of bone-tissue, Ranvier uses the bones of the embryo, which are placed in absolute alcohol for twenty-four hours, having previously been freed of the surrounding soft parts (except the periosteum). After that, they are transferred to a saturated solution of picric acid, in which fluid they are kept until they become soft enough to be fit for sections. In order to make thin and successful sections, the softened bone is plunged into a thick solution of gum arabic for forty-eight hours, and then into alcohol of forty degrees. Now it is easy to obtain very uniform sections through all parts of the bone, *z.e.* bone-matrix, medulla, and periosteum. The sections having been washed in distilled water for twenty-four hours or more, in order to dissolve the gum, they are stained with picrocarminate of ammonia, and finally mounted in glycerine. In a longitudinal section through a long bone of an embryo of a mammalian animal, passing from the periosteum towards the axis, it is easy to see a well-marked boundary between the periosteal bone and the cartilaginous bone. The latter occupies the centre, and has an hour-glass shape in the longitudinal section, whereas the periosteal bone forms on each side a semilunar mass. The long bone at this stage of development may be correctly compared to the following scheme: an hour-glass shaped cartilaginous bone is suspended in a cylindrical tube—the periosteum; that part of the space of the tube which is not occupied by the former is filled out by periosteal bone. This arrangement, although not found in all stages, is always present in a certain stage of the development of the bone. If one examine in a longitudinal section above mentioned the line of ossification, which represents at the same time the boundary between the cartilage and bone, there is found at the extremities of that line a notch penetrating into the cartilage. It is very easily understood that this notch represents the transverse section through a circular groove. From the convexity of this notch ('*encoche d'ossification*'), fibres take their origin, which, at their basis, being identical with the matrix of the cartilage, bend round to the side of the embryonal bone and penetrate into the latter. These fibres, which Ranvier calls '*fibres arciformes*,' become in time identical with those fibres known as Sharpey's fibres. Amongst the mammalian animals, the embryonal bones of sheep are best suited for the study of those fibres. As soon as these fibres have left the cartilage, they appear to be separated by rows of spherical or slightly polyhedral cells, which Ranvier believes to be derived from cartilage-cells after their capsules

have become opened. These cells gradually assume the characters of osteoblasts, and they lie all along the arched fibres, the latter becoming covered with bone-substance, and thus representing the first traces of subperiosteal bone. The arched fibres represent the directing fibres of the ossification; they can be recognised in the interior of the bone in transverse sections, where they appear as small dotted circles in the systems of the intermediary lamellæ.

On the external surface of that part of the cartilage belonging to the '*encoche d'ossification*,' a primary osseous lamella is formed, which Ranvier calls the perichondral bone-crust; it forms later on the boundary between the cartilaginous and the periosteal bone. E. KLEIN.

KOHTS ON COUGHING.—Dr. O. Kohts (Virchow's *Archiv*, vol. lx. Heft 2, p. 191) for his experiments upon this subject, used cats and dogs. Neither the position of the glottis nor diaphragm were directly observed; the author, like Nothnagel, drawing his conclusions from the occurrence or non-occurrence of the characteristic detonations during coughing. The animals were in no case narcotised. For the production of coughing the author employed mechanical stimulants, feathers, pinching, teasing, squeezing with forceps; chemical irritants (common salt and ammonia), thermal (ice) and electrical stimulants. From his experiments the author draws the following conclusions.

By stimulation of the centripetal fibres of the pneumogastric nerve, reflex coughs are produced, and this is proved experimentally:

1. For the trunks of the pharyngeal and superior laryngeal nerves of the pneumogastric;

2. For the peripheral endings of the pneumogastric nerve in the following areas. Coughing occurred:

(1.) On stimulation of the mucous membrane of the pharynx, of the larynx (of the fossa interarytænoidæ, of the plica glossopiglottica and plicæ ary-epiglotticæ), of the trachea, of the bifurcation of the trachea, and of the bronchi:

(2.) On stimulation of the costal pleura:

(3.) On stimulation of the œsophagus (the experimental proof for a so-called stomach-cough is wanting).

3. There is a central cough which can be produced by direct stimulation of the medulla oblongata (*vagus*). WM. STIRLING, D.Sc. (Edin.) M.B.

SCHÄFER ON THE INTRACELLULAR DEVELOPMENT OF BLOOD-CORPUSCLES IN MAMMALS.—At the meeting of the Royal Society, March 19, Mr. E. Schäfer contributed a paper, of which the following is an abstract (*Medical Microscopical Journal*, June 1).

If the subcutaneous connective tissue of the newborn white rat be examined under the microscope in an indifferent fluid, it is found to consist chiefly of an almost homogeneous hyaline ground-substance, which is traversed by a few wavy fibres, and has a considerable number of exceedingly delicate more or less flattened cells scattered throughout the tissue. The cells here spoken of are, of course, the connective-tissue corpuscles. Their branches as a rule are few and short, and they are mainly distinguished by the extraordinary amount of vacuolation which they exhibit—by which is meant the formation within the protoplasm of minute clear spherules, less refractive than that substance, and probably, therefore, spaces

in it containing a watery fluid. The nuclei, of which there is generally no more than one in each cell, are frequently obscured by the vacuoles; but when visible they are seen to be round or oval in shape, and beautifully clear and homogeneous; they commonly contain either one or two nucleoli. It is from these cells that the blood-vessels of the tissue are formed, and within them red, and perhaps also white, blood-corpuscles become developed. Of the vacuolated cells above described, some possess a distinct reddish tinge, either pretty evenly diffused over the whole corpuscle or in one or more patches, the edges of which are shaded off. Others contain either one, two, or a greater number of reddish globules, consisting apparently of hæmoglobin. These vary in size from minute specks to spherules as large as, or even larger than, the red corpuscles of the adult; in cells which are apparently least developed, it is common to find them of various sizes in the same cell; whereas cells which are further advanced in development are not uncommonly crowded with globules of hæmoglobin, tolerably equal in point of size, and differing from the adult corpuscle only in shape. It is important to remark that there is at no time an indication of any structure within the globules resembling a nucleus; the nucleus of the cell also appears up to this point at least to undergo no change. In fact, the formation of the globules of hæmoglobin reminds one rather of a deposit within the cell-substance, such as occurs in developing fat-cells, the difference being that in the latter case the deposited globules eventually run together into one drop, whereas in the former they remain distinct as they increase in size, and eventually take on the flattened form. Before, however, this change occurs in the globules of hæmoglobin, the cells containing them elongate, and are soon found each to contain a cavity, within which the globules now lie. This cavity is probably formed by a coalescence of the vacuoles of the cell. The cell now comes to resemble a segment of a capillary, but with pointed and closed extremities; it is of an elongated fusiform shape, and consists of a hyaline protoplasmic wall (in which the nucleus is imbedded) enclosing blood-corpuscles in a fluid—in fact, blood.

CZERMAK ON HYPNOTISM IN THE CRUSTACEA.—In a paper published in the *Sitzungsberichte der Wiener Akademie* (Band lvi. Heft 3, 4, and 5) Professor Johann Czermak relates some curious hypnotic effects he has observed in certain crustacea. His attention was drawn to the circumstance by a paper in which it was stated that if the ordinary crayfish were held firmly in the hand, and some magnetic passes made down its back, care being taken not to touch it, the animal soon became quiescent, and would permit itself to be placed on its head, where, if balanced by its nasal spine and chelæ, it would remain for a considerable period. On being unmagnetised, so ran the report, by reverse passes, the animal again resumed its activity. Professor Czermak was induced to study these phenomena a little more closely, and soon found that the magnetic passes had nothing to do with the phenomenon; but the fact remained, that if the animal were firmly held, in spite of some struggling, with its head downwards for some time, it gradually became quiescent, and would long continue balanced in the mode above described, as though it were asleep. The mere retention of the

animal upon its back, the first struggling movements being prevented, was followed in the same way by a period of quiescence of considerable duration, from which the creature awoke either spontaneously, or on the application of a strong stimulus. Further experiments showed that all active movements and response to ordinary stimuli, could be prevented in the crayfish by keeping it forcibly quiet for a time, either by binding it, or by fastening it between wooden pincers. Czermak made some experiments corroborating the well-known action of a chalk line drawn from the beak forwards, or from both eyes outwards, on fowls, and which he says struck him with the utmost astonishment when he first observed its effects, the fowl remaining breathing violently, but perfectly quiet and incapable of reacting to ordinary stimuli. He found, however, that the chalk line was unnecessary, all that was required being to restrain the animal's efforts at escape on being first caught, and then quietly to stretch the neck and put the head in contact with the ground. By this means not only fowls, but geese, ducks, turkey-cocks, and swans, could be rendered quiescent, and apparently made to lose all voluntary control over their movements.

BÉCHAMP ON CASEIN AND ALBUMIN.—Commaille finds for casein dried *in vacuo* the formula $C^{108}H^{97}N^{14}O^{29}$, 5HO, the five equivalents of water of hydration being disengaged at a temperature of 150° ; on the assumption that the molecule of casein remains unaltered at that degree of heat, which M. Béchamp has found not to be the case. Pure casein, of which the rotatory power was constant at 109° , was completely dried *in vacuo* at the ordinary temperature. Under these conditions the substance dissolves easily in a very dilute solution of caustic soda, or of sodic carbonate. The quantity of caustic soda necessary and sufficient to dissolve 100 parts of casein dried *in vacuo* is 1.4 parts. At 140° casein, in contact with air, has been found to have lost 2.84 per cent. after three hours' heating. The residue, treated with an alkaline solution, even to a certain degree of concentration, is not entirely dissolved, to 50 per cent. The insoluble portion, washed with a large quantity of alkaline solution, then with pure water, swells up into a transparent jelly that contracts considerably upon desiccation. Casein is then alterable by the action of heat. This substance also the author finds to fix nearly a third of its weight of acetic acid. Butyric acid combines easily with casein, and the compound retains that acid at 140° .

The albumen of white of egg unites also with acetic acid, and the compound, instead of dissolving in acetic acid, as does the casein compound, is insoluble therein.

JOLLY ON THE FERRUGINOUS CONSTITUENT OF BLOOD.—The author, in conclusion of a paper presented to the Paris Academy of Sciences, shows calcination to be a defective method in the analysis of blood when its ferruginous element is sought; that the results vary according to the duration of the operation; that carbonisation in a closed vessel at as low temperature as possible, should be preferred.

PAGET HIGGS, D.Sc.

MR. PIAZZI SMYTH writes to us to say that his paper, forwarded to the Royal Society, to which we lately referred, contained nothing whatever about Melchisedec or divine inspiration.

MEDICINE.

EPIDEMICS OF PAROTITIS.—Three such epidemics are reported in the Statistical Report of the Health of the Navy for 1872, which is just published, in July 1874.

Ninety-eight cases of this affection appeared in the force during the twelve months, the majority occurring in the *Implacable*, the *Impregnable*, and the *St. Vincent*.

There were twenty-one cases of mumps in the *Implacable*. But little information is given in connection with them. In four instances, metastasis to the testes occurred.

In the *Impregnable* there were thirty-seven cases of mumps, with reference to which Staff-Surgeon S. Wade observes: 'Thirty-seven cases of this disease came under treatment. The first appeared on April 20, a well-marked but not severe case; no other occurred till May 6, when two boys came under treatment. After this, cases continued to occur until the beginning of July, the height of the epidemic being about May 26. The long-continued wet weather was the probable cause, and this influence prevailing, both were attacked independently of infection. The boys affected belonged to different parts of the ship, and were not necessarily in close association; those in the sick berth, under treatment for other diseases, were not attacked.

'Both glands were affected in all; in two, metastasis to the testes took place, and in two the testicles were first attacked, the parotids becoming afterwards enlarged. The attacks commenced at first with headache, depression, and the usual symptoms of fever, but not severe in any case. They were all treated on board; a part of the orlop deck was screened off, in which the boys affected were kept in their hammocks. But little medicine was required; a few days' confinement in bed was all that was necessary in most cases. Seven days was the average time under treatment.'

An epidemic of mumps occurred on board H.M.S. *St. Vincent*, and thirty-eight cases were admitted. The difficulty of tracing the first case of a contagious disease to its source is always great. In the attempt made in this instance, every fact was recorded, and every detail regarding the movements of the individual entered upon, but without success. The lad who had first contracted the disease had inhabited a densely populated part of London, and was ignorant of any evil influence being in existence in his neighbourhood. But though this difficulty was pronounced in the attempt to trace out the origin of the first case, no difficulty obtained for the rest; for scarcely had the first boy been on board a few days, before the disease made its appearance among his comrades, and spread rapidly. This epidemic was limited to the Midsummer quarter. Of the thirty-eight cases the right parotid was affected in ten, the left in six, and both parotids in twenty-two. In four of these cases, metastatic enlargement of the left testicle occurred, whilst the right was affected in one.

IRWIN ON ACUTE RHEUMATISM TREATED BY CHLORAL HYDRATE.—The following interesting history of a very severe case of acute rheumatism occurring in a boy of H.M.S. *Cambridge*, is thus given by Staff-Surgeon A. Irwin of the Royal Navy Hospital at Plymouth (*Navy Health Report*, 1874). '.....

aged 16. The boy was admitted from H.M.S. *Cambridge* on November 26, 1872, suffering from acute rheumatism, engaging the wrists, elbows, knees, hands, and ankle-joints, with high temperature, but without cardiac complication. He was treated as has been customary in this hospital, with a mixture containing bicarbonate, acetate, and nitrate of potash, in effervescence; and an alkaline lotion with opium, to the affected joints. He progressed favourably up to December 5, when he became exceedingly restless, and complained of much frontal pain, and his countenance wore an anxious expression. In the evening he was in a state of busy delirium, and symptoms of acute meningitis were conclusively present; at the same time all the articular symptoms disappeared. Enemata were administered, cold to the head, and blisters, without the smallest relief. He was supported carefully with milk, beef-tea, and a fair allowance of wine. His pupils were dilated and almost inactive. He was restless, and continually tossing his arms about. He continued about 48 hours in the above state, and on the morning of the 7th had been without sleep; his pulse was 152, and very weak; his temperature 102°6. He was then ordered draughts containing twenty grains of chloral hydrate, with syrup of ginger; one to be taken immediately, the others at such intervals as might be required. Soon after taking the first draught the muscular twitchings, or tossing about, ceased, and he eventually fell into a quiet sleep. He passed the day and night tranquilly, taking his nourishment at intervals, and on the morning of the 8th was quite rational and comparatively comfortable; but about 2 P.M. there was a return of the unfavourable symptoms (less in degree). He was given half a chloral draught, which quickly composed him, and from that time to the present there has not been any return of head-symptoms. The rheumatic affection relapsed, both knees becoming painful to the touch, and swollen. He steadily improved from his extreme prostration, and was convalescing, but suffered from organic cardiac disease, which must unfit him for further service.

'He had no recollection whatsoever of the *Cambridge*, the ship from which he was sent into hospital, nor of any circumstance immediately preceding his illness. The case is remarkable; first, for its rarity; secondly, from the fact of the disease being almost invariably fatal; and thirdly, for the good effect produced by the administration of the chloral hydrate.'

RECENT PAPERS.

Remarks on the Treatment of Diabetes Mellitus. By Dr. V. Budde. (*Hospitals-Tidende*, no. 7, 1874.)

On a Case of Recurrent Hæmorrhage from the Kidney in connection with Chill of the Common Integuments. By Dr. N. Socoloff. (*Berliner Klinische Wochenschrift*, May 18.)

The Local Treatment of Diphtheria. By Dr. E. Münchmeyer. (*Berliner Klinische Wochenschrift*, May 25.)

On Landry's or Acute Ascending Paralysis. By Dr. L. Calastri. (*Gazzetta Medica Italiana-Lombardia*, May 16.)

Two Victims to Hydrophobia. By Dr. Lorinser. (*Wiener Medizinische Wochenschrift*, nos. 14 and 15.) (Dr. Lorinser does not believe in the existence of rabies as a disease; he says, in concluding his paper, 'Hydrophobia would no longer exist if people ceased to believe in it.')

The Catarrhal and Rheumatic Processes and their Hydrotherapeutic Treatment. By Dr. W. Winternitz. (*Ibid.* nos. 18 and 19.)

On a Fatal Case of Acetonæmia in a Diabetic Female. By Dr. A. Berti. (*Giornale Veneto di Scienze Mediche*, April, 1874.)

MATERIA MEDICA AND THERAPEUTICS.

DEXTER ON A NEW TREATMENT OF CHOREA. Dr. Ransom Dexter, of Chicago, writes (*Chicago Journal of Mental and Nervous Diseases*) as follows. In the early part of January, of the past winter, my attention was called to the case of Miss D., aged thirteen, who had been suffering from impaired health for the previous six or eight weeks. This was attributed to hard study at school, and an effort was made to avert any further serious consequences from that cause, but too late, as the result proved; in less than forty-eight hours after her withdrawal from school, she presented decided symptoms of chorea. On January 14 the disease had fairly made its invasion; and the first prescriptions I thought best suited for the existing conditions were as follows: Extract of valerian and cimicifuga, twice a day; and the elixir of pepsin, bismuth, and strychnia, before each meal; and bromide of potassium and cannabis Indica at bed-time.

In a few days I noticed some malarial periodicity, but no cardiac or rheumatic troubles, though my little patient was growing worse rapidly. I now prescribed Fowler's solution of arsenic; but the symptoms appeared obstinate. I then solicited the advice of one of our most competent physicians, who approved of the adjustment of the agents to the peculiarities of the case; but the course of treatment to be instituted for the periodicity was a complicated question. After canvassing the *pros* and *cons*, we decided to try, cautiously of course, small doses of quinine and iron.

I accordingly did as we thought best; but as soon as the slightest effect of quinine was observable, the following symptoms ensued: hemiplegia on the left side; dilatation of the pupils of both eyes; some choreic movements during sleep, increasing so much when awake that the patient had to be held down on the bed or lounge; she could not sit up, but in attempting to do so, would be jerked down, instantly and violently, by the muscular contraction.

But four grains of the quinine had been given when the peculiar symptoms of this complaint became general, and I despaired of saving my patient, apprehending a general failure and wearing out of the vital powers.

Only ten days had now elapsed, and during that time I had reviewed the writings of several of the most able modern writers on the subject, and was unable to see wherein I could improve upon my first system of treatment. This stage of the disease, with its outlook, was unpromising.

Not being satisfied with either the pathology or the therapeutics of the disease in question, I began to review the facts and phenomena, and the following queries suggested themselves to my mind. 1. Why are choreic patients quiet during sleep? 2. Why do noise and excitement aggravate the condition? 3. Why are the symptoms aggravated by the entrance of neighbours or strangers? 4. Why was the condition so unfavourably affected when the piano was played? 5. Why did so small an amount of quinine have such an injurious effect? 6. Finally, what are the unquestionable physiological interpretations of the phenomena under all these conditions and circumstances?

To me, the whole problem seemed solved in an

instant, as follows. 1. All the sensorial ganglia, or the centres for the nerves of the separate senses, were more or less affected; and the sensori-motor centres were the special seat of the disease. 2. The pathological condition could not be other than an asthenic irritation of the sensori-motor organs. 3. These organs, and especially the sensori-motor guiding ones, must have physiological and therapeutical rest, with the additional treatment by such medicinal agents as will also contribute to that end. 4. If the physiological and therapeutical rest be the *sine qua non* of treatment, then what is to be done?

At first, I essayed to carry out these ideas by blindfolding my patient, filling the ears with cotton, excluding all company, and keeping her in one room, where everything was familiar. The blindfolding, and cotton in her ears she could not tolerate, from her sensitive condition. I then ordered the blinds closed, kept her in a middle room of the house, and enjoined the most strict quietude in every particular, even to lying as perfectly still as possible upon a lounge, that the nerves of touch might not be wrought upon; also in every other particular pertaining to the five senses, and muscular motions.

I continued the extract of valerian, cannabis Indica, and bromide of potassium, with an occasional cathartic to act as a revulsive. Her attendant was her mother, most of the time, but relieved by the patient's father. But little was said in the room; the patient could not speak; and the parents spoke as little as possible, the room being kept in a twilight condition.

In eight hours after this treatment was instituted, we were impressed that a noticeable improvement had ensued; but, within twenty-four hours thereafter, the improvement was a decided one. From that time the improvement continued rapidly; and in six days all choreic movements had subsided.

I do not believe the patient's general health suffered from want of light, but on the contrary, was much better without it, as long as she suffered from chorea.

It would be difficult to make me believe that this rapid recovery was a mere coincidence; therefore, I feel at liberty to express my views, and ask the profession to try them, or be governed by the principle that the *sensorial centres in chorea need physiological and therapeutical rest*.

COLLAS ON IODISED ALBUMEN. — M. Collas (*Bulletin Général de Thérapeutique*) describes a new process for the administration of iodine. Alcoholic solution has been found too irritant in many cases, and as the iodine acts on the alcohol, forming a hydriodic ether, it follows that the tincture is liable to vary in its composition. Iodide of starch has been recommended, because the association of iodine with some organic substance has been found the most certain method of administration. But this preparation is of variable strength, and has besides an unpleasant taste. Iodised albumen, however (M. Collas considers), obviates all these inconveniences, and can, without much difficulty, be formed into pills.

The albumen is prepared by agitating actively an albuminous solution with iodine in very fine powder, or in solution in some appropriate vehicle. The mixture is at first highly coloured, blackish-brown, but this colour gradually disappears in several hours of contact, and the preparation no longer strikes the violet

colour with starch. The product is then desiccated under gentle heat in an air-bath, when it may be made in pilular mass. The dose is so arranged that each pill should contain five milligrammes of iodine.

The experiments at the Hospital Beaujon by M. Dolbeau have shown that iodine thus prepared has no bad effects whatever. The pills in the dose of five or six per day acted rapidly in the resolution of an hypertrophy of the thyroid gland. Iodised albumen seems to have the efficacy of cod-liver oil. It has been administered in cases of chronic osteitis, ganglionic engorgement, strumous keratitis, and in two cases of Pott's disease with congestive abscesses. It may be continued for several weeks without stomach trouble or other inconvenience.

BRUNTON ON THE TREATMENT OF HEADACHE.—Dr. Lauder Brunton, in a paper 'On the Action of Purgative Medicines,' recently published in the *Practitioner*, writes: 'The administration of a brisk purgative, or small doses of Epsom salts, thrice a day, is a most effectual remedy for frontal headache when combined with constipation; but if the bowels be regular, the morbid processes on which it depends seem to be checked, and the headache removed even more effectually, by nitro-hydrochloric acid or by alkalies, given before meals. If the headache be immediately above the eyebrows, the acid is best; but if it be a little higher up, just where the hair begins, the alkalies appear to me to be more effectual. At the same time that the headache is removed, the feelings of sleepiness and weariness, which frequently lead the patients to complain that they rise up more tired than they lay down, generally disappear.'

DECLAT ON THE USE OF AMMONIA IN CHOLERA. Ammonia and the chief salts have an antifermentative action in germ-maladies. But of all combinations or forms of ammonia that of ammoniacal gas and of phenic acid is the best suited to combat confirmed cholera, especially if used in subcutaneous injections (half per cent.) of 100 drops each, by the dose of 2 to 2½ per cent., or in intravenous injections.

PAGET HIGGS, D.Sc.

TOMMASI ON THE ACTION OF BROMIDE OF POTASSIUM.—In a note on an article by Professor Binz, of Bonn, on the therapeutic use of bromide of potassium, in which the potassium is regarded as the true depressor of the muscular and nervous systems, and the bromine as inert, Professor Tommasi makes the following remarks (*Il Morgagni*, January 1, 1874, and *Giornale della reale Accademia di Medicina di Torino*, June 10). 'After many experiments in the use of the bromide of potassium, I believe I may express its action as follows. It has a positive action (1) in acute delirium, febrile or non-febrile; (2) in the eclamptic, epileptic, and epileptoid states; (3) in headache, but in a much less degree.

'On the other hand, I have found it completely useless in cases of insanity (*alienazioni mentali*); in the peripheric forms of nervous disease; in spinal irritation; in angina pectoris; and in asthma.

'It certainly has some hypnotic action, but does not approach chloral. In acute delirium I have given as much as eight grammes (two drachms) daily, and in epilepsy twelve grammes (three drachms), always with advantage, in the sense of diminishing the violence of the paroxysms. I know one case of epilepsy which may perhaps be said to be cured. On the other hand, I have given the bromide in large

doses in cases of alternating convulsions without observing any effect to be produced.

'I have often used it in spermatorrhœa and priapism and in the irritative stage of spinal disease.

'I place but little credit in Binz's opinion, that all the effects are to be attributed to the potassium; I believe that in the cases referred to the medicine did good as bromide.'

A. HENRY, M.D.

BROWNE ON AN IMPROVED INHALER.—Mr. Lennox Browne suggests (in the *Medical Times and Gazette*, June, 1874), an improved inhaler, which is manufactured by Messrs. Corbyn. Starting from Maw's double-valve inhaler, the lateral tube has been carried down deeper into the body of the inhaler, so that the admitted air is made to ascend through a longer column of water, and is consequently fully impregnated with the medicament before reaching the mouth. The lateral tube admits a thermometer, which carries a water-mark. An India-rubber nasal-piece is added for nasal inhalation. Where it is desirable to maintain a high temperature, the inhaler should remain in the box while being used. The price, complete in box, is 10s. 6d.

CULLINGWORTH ON THE TREATMENT OF SYPHILIS BY SUBCUTANEOUS INJECTION OF MERCURY.—Mr. C. J. Cullingworth reports (*Lancet*, May 23, 1874), as follows on this method of treating syphilis. The solution for injection has the formula: Hydrag. bicyanidi, 12 gr.; glycerini puri, 3iv.; aquæ dest. ad 3iv.; and the medium dose is ten drops (containing one-sixteenth of a grain), to be injected into the outer aspect of the upper arm, or better still between the spine and the lower angle of the shoulder-blade, every morning, or as often as required. Twenty patients were injected with this and the following solutions.

1. Three grains of corrosive sublimate, in an ounce of water.

2. Dr. Staub's solution, containing, bichloride of mercury, 1·25 grammes; chloride of ammonium, 1·25 grammes; chloride of sodium, 4·15 grammes; the white of an egg; distilled water, 250 grammes. This was objected to, as in the course of a day or two there was a considerable deposit, and because its preparation was rendered troublesome by the repeated filtration required.

3. A solution containing the double iodide of mercury and sodium.

Preference was given to the first formula, containing the cyanide of mercury, as it caused less pain, and less thickening of the part injected. It has also the following advantages:—

1. Certainty and rapidity with which the symptoms disappear; 2. The small quantity of mercury necessary; 3. Exactness in the measurement of the dose; 4. Impossibility of disappointment through patients neglecting to take their medicine; 5. Absence of gastric and intestinal irritation; 6. Economy in hospital use; 7. The avoidance of publicity involved in using baths; 8. The means it affords of rapidly affecting the system in certain grave complications.

BLANC ON THE TREATMENT OF PHTHISIS BY PHOSPHATE OF LIME AND THE JUICE OF RAW MEAT.—Dr. Henry Blanc reports (*Lancet*, June 13, 1874) as follows on the various preparations of phosphate of lime, and on the method of giving raw meat to phthical patients. The syrup of the lacto-phosphate of lime (Dr. DUSART's) is well tolerated at first, but after a while induces dyspepsia, nausea, and somnolence.

M. Coirre's solution of chlorhydro-phosphate is not grateful to the patients, but is well tolerated by those who are able to overcome their dislike to the rough acid taste of the drug, and has given good results. Another muriatic preparation, the wine and syrup of Chennevière, specially the wine of chlorhydro-phosphate of lime, is a very useful remedy, being both pleasing and well tolerated by the patient. The monocalcic phosphate syrup of M. Barbarin has not been yet sufficiently tested to enable Dr. Blanc to record an opinion about it. When the patients have not been able to persist in the use of the above-mentioned preparations of phosphate of lime, Dr. Blane has prescribed a drachm to a drachm and a half daily of the syrup of triple phosphates (Easton's formula), giving at the same time a couple of grains of phosphate of lime at the principal meals. The cases that are progressing most favourably are those who take the muriatic solutions—Coirre's solution or Chennevière's wine, and at the same time a drachm daily of the syrup of triple phosphates. Under whatever form the phosphate of lime may be prescribed, it should always be taken at meals.

Dr. Blanc administers the raw meat in the following manner. A pound or a pound-and-a-half of fresh beef, deprived of fat, bones, &c., is placed over a quick fire for a few minutes, in order to whiten and harden the external surface only; the piece of meat is then cut into two or three pieces corresponding to the size of the meat-press, and all the juice is extracted by the pressure of a powerful screw. The superficial coction is necessary to overcome the elasticity of the meat, which renders the extraction of the juice a very difficult matter unless more powerful machines be used than the simple one at present required. A pound-and-a-half of good fresh meat gives a teacupful of juice. The juice should be prepared daily. The juice should be mixed with equal parts of tepid broth, made in the bones, and flavoured with salt and pepper, and to which tapioca, vermicelli, &c., can be added. Care should be taken that the broth is never more than tepid, otherwise coagulation takes place. Half the broth should be given at lunch, and the remainder at late dinner; and during both meals some preparation of phosphate of lime should also be taken.

H. SUTHERLAND, M.D.

OTOLOGY.

VOLTOLINI ON ARTIFICIAL PERFORATION OF THE MEMBRANA TYMPANI.—In the *Monatsschriften für Ohrenheilkunde* for January, March, and May, R. Voltolini describes a method of accomplishing the long sought for desideratum of keeping open an artificial perforation in the membrana tympani. Having made a perforation on each side of the manubrium by means of the galvano-caustic or the knife, he inserts, by the aid of a pincette which he has had constructed for the purpose, a tube of gold shaped like a ring, but not joined at the ends of the canal, and having at the part opposite the split an opening on one side of the canal. The split in the ring is passed into the cavity of the tympanum, an end passing on each side of the manubrium, and when in position the ends are pressed together, so as to make the division less than the manubrium, and so prevent the ring from falling out. Placed in this posi-

tion, the orifice in the other side of the ring is towards the meatus auditorius externus. The ring canals are made of fine gold, are of different sizes, from 4 to 2½ millimètres in diameter, and have a canal lumen of one millimètre. The openings in the membrana tympani ought to be made at the end of the first third of the manubrium, commencing at the processus brevis, so as to give the ring as little chance as possible of falling out should suppuration supervene and lengthen the incisions to below the end of the manubrium; and as a preventive, in the same event, of the ring falling into the tympanic cavity, he keeps a thread attached to it till all signs of suppuration are passed. In many cases the operation is easy; in others difficult, on account of the oblique position of the membrana tympani, or narrowness of the meatus auditorius externus; and in some impossible, on account of exostosis, etc.

BONNAFONT ON THE PERFORATION OF THE TYMPANIC MEMBRANE.—M. Bonnafont, in a communication reported in *La France Médicale*, describes two instruments for perforating the tympanic membrane, one by M. Aubrey, and the other by M. Mathieu, both instruments being constructed so as to leave eyelets in the membrane. He says the operation scarcely lasts two seconds; and, during the operation, he ensures steadiness on the part of the patient by causing insensibility of the membrane by injecting ether-spray against it from Richardson's apparatus for about a minute and a half. In answer to Mr. Gosselin, M. Bonnafont said the cases demanding the operation were idiopathic thickening where there was inertia of the membrane, or resulting from paralysis of the muscles of the ossicles, the operator always previously assuring himself, by the usual means, of the integrity of the acoustic organ itself. He believes that the results to be obtained from this operation in proper cases may be compared to those obtained for the eye by the operation for cataract.

W. LAIDLAW PURVES, M.D.

TOXICOLOGY.

MALMSTEN ON CHRONIC ARSENICAL POISONING. Malmsten (*Hygiea*, 1873, and *Nordiskt Medicinskt Archiv*, 1874) relates that a labourer, aged twenty-six, had suffered three years ago from inflammation of the lungs, which confined him to bed for a long time. When he was able to get up, his feet would not support him, but gave way beneath him. Sensation was diminished in the feet and legs; he had trembling of the fingers, and occasional creeping sensations in the hands and feet. He could not support or lift any rather heavy object without letting it fall. After remaining five weeks at home, and thirteen in a hospital, sensation was entirely lost in the soles of the feet and greatly diminished in the hands. The organs of sense were normal. He improved a little under the use of baths and electricity, and after a course of cold-water treatment became quite sound. In January, 1873, after exposure to cold, he had an attack of vomiting for three or four days; he recovered from this, but three weeks afterwards had a similar attack, which lasted six days. After his recovery, he had numbness in the hands, especially in the tops of the fingers, and also in the feet, where cutting pains were sometimes felt. There was a certain amount of stiffness of the ankle and

knee joints, with difficulty in walking. He had never had syphilis, and had lived in good hygienic condition.

On March 14, 1873, he was admitted into the Seraphim Hospital. His muscular structure was lax, his gait unsteady; his hands, feet, fingers, and toes could be moved without impediment. Sensation was somewhat diminished in the soles of the feet and in the palms of the hands, and electromuscular contractility remarkably so; in the legs and forearms it was less so. He had occasional creeping sensations in the hands and feet. The strength of his hands was diminished. The intellect was unimpaired; the organs of sense were normal. His condition improved under the use of iodide of potassium and galvanism, and on May 10 he was discharged cured.

Arsenical poisoning was suspected, and after repeated questioning he acknowledged that he had taken 'merkulja' (a country name for arsenic), when he felt himself indisposed, after which his illness appeared. He had obtained the arsenic from another lad to give to horses. A. HENRY, M.D.

PSYCHOLOGY.

LUNIER ON THE PSYCHICAL EFFECTS OF POLITICAL AND SOCIAL TROUBLES.—In a series of articles in the *Annales Médico-Psychologiques* (May, 1874, and preceding numbers), Dr. L. Lunier examines the effect produced by the political and social troubles of France in 1870-71 as regards mental disorders, and the following is a *résumé* of the conclusions arrived at. The events of these years produced between July 1, 1870, and Dec. 31, 1871, between seventeen and eighteen hundred cases of insanity. During this period, however, there were admitted into the French asylums, 1,300 patients fewer than in the corresponding period of 1869-1870, so that the war caused as its immediate result a considerable diminution in the number of admissions, and in the total number of those in asylums at the end of the year. This diminution was due partly to the derangement of the asylum administration, partly to the parsimony of some of the departments, and also to the suspension of certain etiological influences which, at ordinary times, produce mental disorder; also the acute character of the insanity in 1870-71, and the rapid termination either in death or recovery, tended in a measure to diminish the number of those remaining at the conclusion of the period. From the end of the year 1871, however, the number of admissions gradually rose, and in 1872 showed an increase which was quite exceptional, viz. 2,785, while in 1873 the increase has not been more than 872, a number more nearly approaching the usual average. The mental disorders due to the events of the war-period were more frequent amongst men than women. In the subsequent period the increase has been chiefly amongst females, but the difference in either case was not great. Hereditary predisposition played an unimportant part in the insanity caused by the political events, being observed in only twenty-four per cent. of cases, while at other times it is found in sixty-three per cent. In estimating the causes of this insanity, it is found that some acted indirectly by exciting profound emotion; others operated directly on the individual, e.g. in departments occupied or menaced

by the enemy. The causes most frequently observed were fear at the approach of the enemy, dismay at the prospect of enforced service, the departure of some dear relative for the seat of war, the moral and physical exhaustion produced by the war, and especially the siege of Paris, the news of disasters, and the occupation of the country by the Germans. Although the causes were altogether of a depressing character, every form and variety of mental disorder were met with. The expansive varieties were more frequently seen than the depressed. It was clearly demonstrated that the same cause might produce totally different forms of insanity, and that from causes completely dissimilar there might proceed sometimes the same, sometimes different kinds of mental disorder. In some cases, especially where there had been alcoholic intemperance, certain symptoms indicated to a certain extent the cause which had given rise to them. Among the morbid phenomena most frequently noticed were stupor, pantophobic terror, refusal of food, suicidal propensities, exalted mania, hallucinations of hearing, and delusions of persecution.

G. FIELDING BLANDFORD, M.D.

REVIEW.

A Treatise on Food and Dietetics, Physiologically and Therapeutically considered. By F. W. PAVY, M.D., F.R.S., Fellow of the Royal College of Physicians; Physician to, and Lecturer on Physiology at Guy's Hospital. London: J. & A. Churchill. 1874. Pp. 559.

In this work Dr. Pavy has collected, and, with few exceptions, has usefully and intelligently digested the information which we possess in reference to the food of man.

Having pointed out, in a preliminary chapter, the relations of food to the work performed by the animal body, and drawn attention to the function of vegetables in forming the compounds which serve as the organic nutriment of the animal, the author treats of the classification, chemical relations, digestion, assimilation, and physiological uses of the various alimentary principles. He then discusses in detail the alimentary substances, which he arranges under the heads of animal alimentary substances, vegetable alimentary substances, beverages, and condiments. Separate chapters deal with the Principles of Dietetics, Practical Dietetics, and Therapeutic Dietetics. The work affords ample evidence that the author has carefully, and at great pains, made himself a master of that part of the literature of his subject which is accessible to the English and French reader, although it appears to us that in some cases he exhibits a deficient acquaintance with the more recent German literature.

Dr. Pavy's book commences with some observations on 'Matter and Force.' 'Around us,' remarks the author, 'we have to deal with matter and force—the one a substantive entity, the other appreciable only as a principle of action. It has long been known that (as cognisable in our own era) matter can be neither created nor destroyed. It may be variously combined and modified, but it remains the same in essence and unaltered in amount. Force, also, has more recently been recognised as similarly conditioned; and, in order that the bearings of food

in relation to this principle may be understood, some preliminary considerations explanatory of the views now entertained regarding it are necessary.' Then follows a slight sketch of the historical development of the doctrine of the Correlation of the Physical Forces, which commences with a notice of the researches of Grove, and deals with those of Meyer and Joule, which culminated in the discovery of the mechanical equivalent of heat, and the establishment of the doctrine of the conservation of force. Those who refer to the development of the idea of the correlation of the physical forces, unwillingly commit a great injustice to the man who, long ago, established by direct experiment the conversion of mechanical work into heat, and who further established the connection which exists between the work done by an animal and the food with which it is fed.

It was at the very close of the last century that Benjamin, Count Rumford, by his famous experiments on the heat developed during the boring of cannon, dealt a fatal blow to the old material doctrine of caloric, and pointed out in a conclusive manner, although not so as to admit of quantitative determination, the connection between heat and motion. ('An Inquiry concerning the Source of Heat which is generated by Friction.'—*Philosophical Transactions for 1798*, and *Nicholson's Journal*, 1799, p. 106). He devised apparatus by which he demonstrated that in the boring of a cannon an amount of heat is generated sufficient to raise a large quantity of water to the boiling point; he weighed the chips of metal separated during the operation, and determined their specific heat, which he showed was exactly the same as that of the cannon from which they had been detached. Further, Rumford speculated with perfect correctness that the heat developed during the boring of the cannon was the result of the work done by the horse which was made to turn the boring machine, and was derived from the food which the horse had consumed. We cannot but allude to these researches of Count Rumford, as they appear to us to deserve the first place in any historical sketch, however short, of the development of the doctrine of the correlation of the physical forces.

In his attempt to define the terms force and energy, Dr. Pavy has expressed himself in such a manner as to lead us to believe that considerable confusion exists in his own mind in reference to the real meaning of the words. 'It is necessary,' says the author, 'to state here that the term force, when used in a strict sense, is employed under a more limited acceptance now than formerly. Originally it represented what is now distinguished as both "force and energy." By force, in a rigid signification, is understood the power of producing energy, by "energy" the power of producing work. To give an illustration: powder has force, the cannon-ball energy; but to speak of the force of the cannon-ball is incorrect.

'I may also remark that the words actual and potential are in frequent use to qualify the state in which the energy is met with. By actual energy is meant energy in an active state—energy which is doing work. By potential energy, energy at rest—energy capable of doing work, but not doing it, etc.' After reading attentively the passage which we have quoted, we have come to the conclusion that Dr. Pavy believes the term force, as now used, to be a synonym for potential energy. 'Powder has force,' says the

author, 'the cannon-ball energy; but to speak of the force of the cannon-ball is incorrect.' Now the truth is, that the term force is a much more comprehensive one than that of energy, as Dr. Pavy might have concluded had he reflected that we still speak, and with perfect correctness, of the 'force of gravitation,' of the 'force of cohesion,' &c.

Force has been very aptly defined (Tait and Thomson) as 'any cause which tends to alter a body's natural state of rest, or of uniform motion in a straight line.' Energy, on the other hand, is easily defined as the capacity for doing work, and bodies possess it in virtue of their position (potential energy) or in virtue of their motion (kinetic energy). The gunpowder referred to by Dr. Pavy possesses potential energy—not force in our strictly accurate modern phraseology; on the other hand, the cannon-ball in motion possesses kinetic energy, and we shall not be violating our definition of force, if (in relation to other bodies with which it may come into contact) we do speak of the force of the cannon-ball.

These remarks are made in no hypercritical spirit, but merely because we consider that, in dealing with matters which admit a perfectly exact treatment, and which form the basis of the theory of food, too much care cannot be taken by any writer on dietetics.

The first part of the chapter on The Nitrogenous Alimentary Principles strikes us as peculiarly unsatisfactory, for the author's description of the albuminous or proteine compounds of animal or vegetable origin might have been written twenty years ago. Albumen, fibrine, and caseine, vitelline, globuline, and syntonine are the animal albuminous substances described. Vitelline is described as the modified form of albumen which exists in the yolk of the egg. Syntonine is referred to as muscle-fibrine! The vegetable albuminous substances are, according to the author, vegetable albumen, vegetable fibrine (a compound of vegetable gluten and caseine) and a vegetable caseine. We cannot help regretting that Dr. Pavy has not made himself acquainted with the really splendid researches of Professor Ritthausen (*Die Eiweisskörper der Getreidearten, Hülsenfrüchte und Oelsamen*, Bonn, 1872). Ritthausen's researches establish the existence of the following albuminous substances:—1. Vegetable albumen proper: 2. Substances belonging to the group of vegetable caseines, viz., *a*. legumin; *b*. gluten-casein; and *c*. conglutin: 3. Substances which may be classed as vegetable gelatins, viz., *a*. gliadin; *b*. mucedin; and *c*. gluten-fibrin. Ritthausen's researches have not hitherto been fully laid before the English scientific public, and we hope that in a future edition of his work Dr. Pavy will not fail to do so.

If we except an apparent want of acquaintance with the researches of the last few years (seeing that the names of Brücke, Schiff, Kühne, and Thiry, do not find a place beside those of Mialhe and Corvisart in Dr. Pavy's book), the remainder of the chapter on the nitrogenous principles is very satisfactorily treated. The relation of nitrogenous food to muscular work is ably and exhaustively discussed; a capital *résumé* of Dr. Parkes's admirable research being given. The same judgment must be pronounced in reference to the discussion on the part served by the carbohydrates—their conversion into fats, the dietetic value of alcohol, &c.

In spite of the criticisms which we have felt compelled to make, we can confidently affirm that Dr. Pavy's book is one which constitutes a valuable ad-

dition to the medical library. It contains more information on the subjects of which it treats than any similar English book, and it is certain to prove exceedingly useful to the medical practitioner.

ARTHUR GAMGEE, M.D., Manchester.

MISCELLANY.

TRICHINA SPIRALIS.—In the *post mortem* examination of a man 73 years of age, Professor Klob, of Vienna, lately found all the muscles of the body studded with thousands of trichinae, mostly calcified, but some still alive. The man had died of marasmus. He had not left Vienna for ten years; but had previously spent some time in Germany. Dr. Klob believed that the invasion of trichinae must have occurred at least fifteen or twenty years ago.

THE PLAGUE.—According to a recent telegraphic despatch, the plague has broken out at Bagdad and Tripoli. During last month a commission composed of four physicians was sent by the Ottoman Government to hold an inquiry respecting this disease, and report on it. It has appeared at Hillé Divanieh, Dagara, and Afidj. Quarantine regulations have been promptly applied all round the infected districts; and the last telegrams from Bagdad, up to the 14th instant, announce that the epidemic has considerably diminished. It has also been reported that the plague has broken out at Sena, in Persian Kurdistan, where it made its appearance in 1871; but this news requires confirmation. The plague has shown itself in another quarter, at Merdj, a city in the district of Bana, at a distance of twenty hours from Bengazi, a port of South Africa. The most rigorous sanitary precautions have been ordered and carried into execution at the Italian sea-ports, with regard to all vessels coming from the countries suspected of being plague-stricken. Doubtless similar precautions will be adopted in the French sea-ports, especially that of Marseilles.

ABSENCE OF OXYGEN IN THE WATER OF ARTESIAN WELLS.—M. Gérardin, in a paper read to the Paris Academy of Sciences descriptive of the artesian wells of Grenelle, finds there is no oxygen present in the water from the lower sandstone of this locality, nor from the Rilly gravel beneath the clay, and at contact with the chalk (the water was obtained out of contact with air from various depths by means of a syphon invented by the author), nor from the Soissonais gravel. Neither was this gas discovered in the water from the artesian well at Gonesse. M. Gérardin concludes that water obtained from subterranean depths does not contain oxygen if kept from contact with the atmosphere. This precaution is essential, for in contact with air it dissolves several cubic centimètres of oxygen. The author has often found in the interior of the ascension tubes long white opaline filamentary algæ. These algæ present the curious property that they remain white in solar light as long as the water is deprived of oxygen; but they become green the instant the water is the least aerated. Their sensibility to the action of oxygen is the most delicate. The action of the algæ serves to confirm the chemical test with hyposulphite of soda.

ARSENICAL POISONING BY WALL-PAPERS.—Dr. George Johnson, in an extremely able lecture published in the *Sanitary Record* of July 4th and 7th, collects some well-marked cases of arsenical poisoning, due to the wall-papers of rooms, his first three cases being in the persons of well-known physicians, whose sufferings were considerable, as the cause of them was unequivocal. Some of these cases are described in detail. The author goes on to show that the symptoms which are believed to have resulted from the use of arsenical wall-papers are similar to those which occur more or less constantly and severely amongst work-

people who are engaged in the manufacture of arsenical pigments, or of the papers, artificial flowers and leaves, and other articles which are coloured with arsenical compounds. Dr. Johnson then proceeds to reply to the arguments of those who doubt the injurious effects of arsenical wall-papers, and who maintain that, if these papers were really injurious to health, their very general use for many years past would have caused numerous, and not rare and isolated cases of illness. To this objection Dr. Johnson replies by saying that probably many more cases of illness have resulted from the use of these papers than are known or even suspected to have had this origin. Then the quantity of poisonous dust thrown off from an overcharged arsenical paper is so small, that those only who are more than ordinarily susceptible suffer appreciably from the inhalation of the poison. In illustration of this, various examples of idiosyncrasy are referred to. A comparison is made between the symptoms caused by the inhalation of arsenical dust and those of 'summer asthma, or hay-fever.' Happily there are few individuals so sensitive as to have their eyes and nose and throat excited to inflammation by a neighbouring grass-field. Amongst workmen whose occupation compels them to breathe an atmosphere largely charged with arsenical dust, there are but few who do not suffer more or less seriously from the poison; but the comparatively small amount of poisonous dust which ordinarily floats in the air of a room hung with an arsenical paper has no appreciable effect on any but those who are peculiarly sensitive to the influence of the poison, a sensitiveness which may sometimes be shared by several members of the same family. The comparative rarity of these cases affords no reason for doubting their reality when they do occur, or the intimate relation between the symptoms and the inhalation of arsenical dust. The extreme tolerance of noxious influences displayed by some individuals is as remarkable and inexplicable as the high degree of sensitiveness manifested by others. Undoubted cases of poisoning by arsenical papers are common enough, and sufficiently serious to call for an energetic protest against the continued use of such papers; and it should be borne in mind that arsenic is often present, not only in bright green papers, but in pale green, grey, and even brown papers.

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The London Medical Record.

WEDNESDAY, JULY 22, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

GOODELL ON DISEASES OF WOMEN.*

(Concluded from page 431.)

Abdominal Supporters.—They may not cure, but in certain conditions of distended abdominal walls they most certainly alleviate the urgent symptoms, especially in those cases where the patient herself instinctively supports her abdomen with her hands from a sense of downward pressure. Nothing has the writer seen to relieve a bed-ridden hysterical woman more than this simple procedure.

The 'rationale' is that the weight of the abdominal viscera is not borne by the pelvic organs, but from the curvature of the spine the downward pressure is spent upon the pubic bones. The generative organs are shielded below the promontory of the sacrum, and the pressure to which they are subjected is an oblique one. A displaced or a flexed uterus may give rise to discomfort if it become congested or inflamed, and it becomes intolerant of the superincumbent weight, however slight. If the abdominal wall be pressed backwards and upwards towards the sacral promontory, a shelf is formed for the viscera to rest upon; and further, by shortening of the conjugate diameter of the superior strait, the space for reception of the viscera is lessened, and to that extent the generative organs are protected from sudden succussions.

The curves of the spine of the woman may become altered either from the effects of time or from the defects of carriage, so that the double curve may be lost and become bow-like instead. This change produces an alteration in the obliquity of the pelvis, the axis of the inlet tending to coincide with that of the trunk, so that the pressure of the abdominal viscera is direct in its action on the pelvic organs. The cure is in bringing back the sigmoid curve of the spine, which a brace for the shoulders and an abdominal support for the belly does and can effect.

Prolapsus of the Womb.—This is divided into three varieties; prolapse of the womb proper; prolapse of the cervix (from hypertrophic elongation); prolapse of the cervix from elongation of the supravaginal portion (by traction). In the first condition all falls down, and there is little or no increase in the length of the uterine cavity. In the latter two there may be a slight sinking of the fundus; but for the lengthening of the cervix there is a great increase in the measurement.

The first condition in old women arises from loss of the fat pads and the double curve of the spine;

in young women from subinvolution, congestions, long-continued vomitings, tight-lacing, skirts unsupported by braces, lacerations of the perinæum, and last, but not least, the prolonged use of the obstetric binder. Its treatment is relief of the congested uterus when it exists, pessaries to support the fundus, and braces and belts to restore the curvature of the spine where it has been lost.

The second variety arises from nutritive activity of the cervix, which may be the result of cervical metritis, from the contusions of labour which produce the hypertrophic elongation of the cervix as a whole, or of only to a portion, usually the anterior, forming what is called 'tapiroid,' from its likeness to the snout of the tapir. Wherever the vaginal portion is so long as to protrude from the vulva, it is congenital, or the exaggeration of a congenital condition. One of its modifications is the conical cervix. The treatment of these several conditions is to amputate with the scissors or *écraseur* when the prolapsed part is unduly large and inconvenient to the patient. The conical cervix rarely needs shortening; slow dilatation by sponge-tents just before the catamenial flux, and rapid distension afterwards by the dilator, will generally effect its cure.

The third variety, cervical elongation (by traction) of its supravaginal portion is entirely a different condition. It is a hernia of the bladder and vagina, acting mechanically on a tensile womb. The lower portion of the corpus participates in this elongation, because the muscular structure is less developed than that of the upper; but the elongation is greatest at and about the internal os, through the absence of muscular structure—the resistance there is least. The eversion of the os and circular hypertrophy of its lips arises from impediment to the circulation in the vaginal portion. The only treatment is to keep the woman in bed for a short time, so as to relieve the hypostatic congestion, and then remove the vaginal portion of the cervix by the wire-*écraseur* or the galvano-caustic loop. The supuration from the open wound sets up nutritive changes so as permanently to contract and consolidate the elongated portion. Great care should be taken not to wound the bladder or the peritoneum in Douglas's pouch. Where the fundus is prolapsed also, the vulvo-vaginal opening must be contracted. A horse-shoe shaped strip of mucous membrane an inch wide should be pared off from a little below the level of the meatus urinarius, and brought together by wire-sutures.

Fibroid Tumours.—The object to be obtained is to stay the hæmorrhage, to check their growth, to allay the pain, and lessen the weight and inconveniences. To stay the hæmorrhage teaspoonful doses of the liquid extract of ergot every two or three hours or twenty to thirty grains of gallic acid, have often proved the most efficient remedies with the author. The infusion of *vinca major* he has not tried, but has seen cinnamon boiled in milk act like a charm when all else had failed. Leeching or scarifying the cervix a day or two before the menstrual epoch does tend to lessen the bleeding materially. If the hæmorrhage yield to none of the ordinary measures, the cervix itself should be plugged by means of a large sponge-tent. This not only arrests the bleeding at the time, but diminishes the tendency at future periods. Should, on the removal of the tent, the bleeding still continue, stretch open the cervix with the dilator, inject into the uterine cavity between the blades two drachms of

* Reprint of articles published during January and February, 1874, in the *Philadelphia Medical and Surgical Reporter*.

the tincture of iodine or a strong solution of Monsel's salt, or push up a piece of lunar caustic, about 5 to 10 grains in weight, and let it dissolve, or swab out the uterus with fuming nitric acid, taking care to wash it out well afterwards with water. If these measures do not succeed, incise the whole length of the canal bilaterally with the hysterotome, or at several points with the probe-pointed curved bistoury. If the cervix be long, the author expands it rapidly with his dilator and then stuffs it with laminaria tents.

Intercourse he forbids as conducive to their growth. Hildebrandt's method of hypodermic injection of ergot is recommended, as numerous good results have been seen to follow its adoption. Ergotism may be produced, evidenced by severe uterine pains and a spurious hectic fever and headaches; it, however, soon passes off if the injection be omitted for a time. The writer advises ten to fifteen grains of the officinal fluid extract, diluted with enough water to fill the hypodermic syringe, to be used every night until symptoms of uterine contractions are established.

Cancer of the Cervix Uteri.—Immediate removal by the galvano-caustic loop of any malignant or quasi-malignant growth is enforced, and if any portion remain it should be dug out by a red-hot spatula. Should there be a tendency to closure of the cervical canal, the occasional use of the dilator is of service. If necessary, this operation must be repeated over and over again. Iron, arsenic, and ergot should be given; iron to build up the system, arsenic to repress the tendency to reproduction and systemic poisoning; the ergot to starve out these growths by shortening their rations of blood-pabulum. To correct the offensive odour the writer prefers hydrate of chloral, either as a wash or a suppository, as it relieves the pain at the same time.

Polypus Uteri.—This should never be removed, or at least the first part of the operation in a large tumour be proceeded with, under an anæsthetic; as there is a danger of either cutting the cervix or even the uterus when inverted, should the patient be unconscious. Such would not be the case if conscious, as pain would immediately indicate the condition. The recurrent fibroid is apt to deceive the physician, and induce him to give a wrong prognosis. It should be recognised by its bleeding very freely, emitting a bad odour, and feeling not unlike placental tissue; its structure is so feeble that it breaks down under the least traction. A polypus should be always removed at once if discovered during gestation or labour, or after delivery in the uterine cavity; as, from injuries sustained during parturition, it is liable to become gangrenous, and to kill the woman by absorption of septic matter.

Puerperal Convalescence.—A full and generous diet is advocated for the first day after delivery, and the usual purge on the third to be dispensed with as tending to promote the absorption of septic matter. A recumbent posture is not to be too rigidly enforced, as being liable to weaken and debilitate; and the author argues that, since labour is a natural process, there is no reason why a woman should not sit up or slip into a chair whenever she feels disposed, as such movement induces uterine contraction and helps to get rid of retained clots and offensive discharges. It also helps to equalise the circulation and remove that passive congestion of the uterus, engorgement of the placental site, and that blood-stasis which decubitus favours, which is believed to be a very common cause of posterior displacements.

The binder should not be used longer than forty-

eight hours, as its longer application produces the very evil which it is meant to obviate—injury to the female contour—by weakening the muscles of the abdominal wall. It also acts injuriously, not only by forcing the viscera upon the womb and the womb into the pelvic cavity, but also the pressure of so hard a body on the vena cava impedes the circulation and impairs the process of involution. Should the lochia continue beyond the third week, it may be safely inferred that the uterus is not involuted, or that some unhealed laceration of the cervix remains. Astringent injections are recommended, and large doses of quinine, as the latter acts upon the uterine fibres. If a woman have previously suffered from some uterine affection, she should be, immediately after delivery, placed on ergot and quinine.

Lacerations of the Perinæum.—When the perinæum is torn, air, the author thinks, gains access to the womb, irritating and congesting it, which ultimately prolapses from acquired hypertrophy. Believing this to be the case, every care should be taken to preserve its integrity. The perinæum is directed to be held by inserting one or two fingers in the rectum, and pulling the perinæum towards the pubes, placing the thumb on the child's head, great care being taken not to wound the fourchette. The advantages are that it helps to dilate the perinæum at the same time that there is no direct pressure made on that body, which in its benumbed and stretched condition is only rendered more insensible by the support of the hand. The muscular fibres are brought together and the tension removed off the raphe. The dilatation of the sphincter and forces the occiput against the pubes, and favours extension of the head, especially if the fingers press on the foetal face or chin. Support thus given prevents injury through sudden expulsive efforts. The thumb helps to regulate the passage of the child's head, whereas the hand, by its pressure on the perinæum tends to excite reflex expulsive action. Lastly, the double pressure of the supporting hand and the advancing head on the perinæum, retarding the free circulation of the blood, is avoided, and it is more likely to retain its sentient property. Too much flexure of the head in the occipito-anterior, or in the occipito-posterior position, facilitates rupture of the perinæum, and should be rectified in each instance by the forceps with as little delay as possible. When the instrument has been applied and the soft parts are sufficiently dilated, the blades should be removed and the labour left to nature. After every labour the finger should be passed up the vagina and rectum to find if any laceration have occurred, and the extent. In every case of lacerated perinæum, where the rent has gone beyond the superficial structures, it should be immediately sewn together; if it be severe, the legs should be tied together, and the urine drawn off, the bowels being kept closed for a week. Sutures are not to be removed before the eighth or ninth day.

General Hints.—Braces are advised to be worn and corsets abandoned; excessive mental study is deprecated, and the erect attitude enforced; the latter position increases the obliquity of the pelvis, and diminishes the downward pressure on the pelvic organs. The catamenia should be regarded by women as a 'dower of health and beauty,' and mothers should so teach their daughters. The rest is adapted entirely to American ladies, as the abuses mentioned by the author happily do not exist in England to any such extent as to require notice.

W. C. GRIGG, M.D.

EPIDEMICS OF CHOLERA IN FRANCE.

(Continued from page 434.)

Notwithstanding the four epidemics of the disease that have ravaged Europe, a number of persons still hesitate to express their opinion on the origin and prevention of the disease. The theory of propagation of the disease by atmospheric currents suggests nothing against its course, to avert or destroy it. That of the spontaneous generation of cholera, in like manner, proposes nothing, nor does it indicate where is the source of the disease, what is the cause of its production, or under what combination of conditions it is produced. On the contrary, the theory of importation of the germ of cholera, of its generation in persons successively attacked, and of its transmissibility from one organism to another, not only points to the most rational therapeutic indications, but also indicates the hygienic means best calculated to diminish the severity of the disease, and to formulate the international measures by which new invasions may be prevented. The committee, having weighed all the evidence adduced by reporters, and judging from the experience of its members, adopt the opinion of transmissibility of cholera as the most natural. They observe the frequent occurrence of the disease in the proximity of places already attacked, and the rapid development of the disease in its subjects. They look upon the enormous dejections, often amounting to eight and ten litres in the space of a few hours, as only to be accounted for as arising from the serosity of the blood exuding through the surface of the intestines, but the albumen of which does not reveal itself by the ordinary reagents. They consider that the action of ferments, which attack by predilection the albuminous matters, is to transform and multiply themselves; that their corpuscles, soluble or insoluble in water, become suspended in the air, and are transported by that vehicle; that cholera originating in India is the product of a special miasm that has never been, and never can be, produced in France. This miasm, they consider, consists of subtle, impalpable corpuscles, probably organic in nature, but which have not yet been isolated by means of science. They penetrate into the living economy by the pulmonary and digestive organs, act as ferments, and produce in the albumen of the blood a modification of composition, the result of which is that the serum transudes by the surface of the intestine, thus causing decrease in the mass of the blood, the course of which in the capillaries becomes more and more slow. This morbid miasm becomes multiplied in the organism like molecules of ferments, is disengaged from the affected body chiefly by the alvine dejections, is suspended in the air, propagates itself to distances to affect new victims under particular conditions of temperature, which affect the powers and organic predisposition, or otherwise favour its effects. The primary source of the disease-producing agent resides in the patients, notably in the matter evacuated by them, not only during life, but after death. The emanations arising from the dejections become a direct and manifest cause of cholera in the vicinity of a patient, the more so when ventilation and cleanliness are neglected.

A second source resides in the dejections thrown upon refuse-heaps in streets or courts, as in villages, farms, and badly kept houses, and deposited in public or private latrines, communicating by means of pipes in different storeys. The emanations thus arising

from different points mixed with the air, and transported with it, become the means of propagation of the disease in different directions, according to the displacement of contaminated air and the intensity of morbid effluvia.

A third source, less apparent, proceeds from water contaminated by morbid dejections thrown upon public ways or into drains, and disengaged by subsequent rains, producing streams or percolating into the earth. Thus also cholera is induced by water from some wells, and by that from cemeteries passing into sources of supply for towns and villages.

A fourth source of the disease exists in body-linen, bedding, clothing, and other articles impregnated with the dejections of patients. These, being sent to a greater or smaller distance for washing, become the means of transplanting the morbid principle into places until then exempt, the dissemination taking place with more or less rapidity, according to the rapidity of transport.

Lastly, patients being moved, whether individually or in masses, as emigrants, armies, or caravans, bring with them cholera into previously healthy places, even to considerable distances, and also more or less rapidly, according to the rapidity of their movements and facility of transport.

In these various ways cholera may be caused and propagated. The conditions necessary for both may exist in the chamber of the patient or in the ward of an hospital, in the vicinity of a focus formed by a dépôt of alvine matters, whether removed to a distance from the affected or in their neighbourhood, or of those fleeing from infected localities, while the germs are as yet undeveloped in them, or have only produced cholera. The circumstances that the disease on some occasions continues for a long period, affecting a large number of persons, while in others it is speedily extinguished after making a few victims, depends upon the organic aptitude of individuals, such as we in fact have in consanguinity. It also depends upon the hygienic state of the inhabitants in regard to competency, temperance, cleanliness, distance from each other, or crowding of habitations, camps, or ships; according to the state of the locality where the germ is deposited—as to whether it is low, marshy, surrounded by hills, preventing free circulation of air, and so on. Thus we have an explanation of the disease being communicated to persons residing near patients suffering from it, of its extension in the same building, in a particular range of houses to leeward of a contaminated drain, whether in a village or town. A similar explanation may be given of the sudden occurrence of the disease at great distances without intermediaries, also in places considerably separated from those where it has first broken out, contact being thus traced in many outbreaks in appearance spontaneous. In this way we can explain the good results of removal of a body of troops from a contaminated locality, or a camp the ground of which is contaminated by putrid matters or dejections of cholera-patients, and establishing them in a new and more elevated locality, the soil of which is still untainted.

With regard to the treatment of those attacked by the disease, the best method is to neutralise the miasm, the primary source of the malady; but, the nature of that principle being unknown, the antidote has yet to be found. If science does not yet possess a special agent, it at least leads by way of induction to the employment of other agents, the utility of which has been demonstrated by experience. The principal

indications to fulfil are, to moderate the enormous evacuations of fluid which take place; to maintain the warmth of the surface; to favour the circulation of the blood. The hygienic measures to be adopted include the greatest cleanliness around the patients; free ventilation; the disinfection of clothing and dejections, and the speedy removal of the latter. Long continuance in the rooms or wards of the sick is to be avoided; the attendants should be often changed, and all superfluous persons sent away. As individual preventive measures, temperance and moderation in all things are to be observed; the state of the bowels must be attended to, and tendency to diarrhoea checked. Infected localities are to be abandoned when possible, and at any rate the departure of the timid will diminish the number of the predisposed, and thus lessen that of the victims. In respect to public hygiene, both before and after the outbreak of the disease, the public and private latrines, the drains and sewers, should be disinfected; all causes of putrid emanations should be removed. Special wards for cholera-patients should be established in hospitals, these being provided with free ventilation and ready means to change the bedding and linen as required. These wards should be maintained in the highest degree of cleanliness. If the epidemic be protracted, they should be changed from time to time, completely fumigated and whitewashed. The air of dead-houses should be purified as far as possible; the bodies of the dead should be speedily interred and surrounded by lime, or, as recommended in France, subjected to cremation. Water for use is only to be drawn from wells secured from pernicious underground infiltration, or from rivers above the point of discharge of drains and sewers into them. The quality of articles of food should be tested; tainted meat and unripe fruit should be condemned; and the sale of drinks supervised. House-to-house visits should be instituted, patients in the early stage of attack searched for, and treated or removed as the case may be. The dwellings should be cleansed. Paupers and tramps arriving from contaminated localities should be isolated in places set apart for the purpose, there receiving all needful care. Assemblages of troops, fairs, and markets are to be prohibited; troops should not march through infected places; they should be broken up and spread if already attacked, encamped in a healthy spot, and placed under shelter.

With regard to these measures, the committee observe that they are all excellent in their several ways; yet that more remains still to be done: other measures must be taken with a view to prevent new invasions of the disease. Of these, the best would unquestionably be, to check the development of the disease at its original source, and adopt the same sanitary measures as made the plague disappear from the delta of the Nile. If that be impossible, the arrival of the disease must be prevented by measures, the efficacy of which has been proved by experience. Quarantine should be applied to caravans leaving India towards the north-east of Europe, also to ships from India or other infected places. It is known that in 1865 the Mussulman pilgrims embarked at Jeddah carried cholera with them; they disembarked at Suez, proceeded thence to Alexandria by rail, and it was only after a new embarkation that they reached Beyrout, Smyrna, and Constantinople. With a view to prevent a similar occurrence for the future, it would be well to prevent the arrival by ships of pilgrims from Arabia into Europe.

HITZIG ON FERRIER'S EXPERIMENTS ON THE BRAIN.

Dr. Hitzig forwards to us the following memorandum of his reply to Dr. Ferrier's late contribution.

In the first July number of the LONDON MEDICAL RECORD, Professor Ferrier reviews my book, *Untersuchungen über das Gehirn*, and becomes thus a judge of his own cause, and makes full use of this circumstance. In reply to his long exposition, through which the reader will hardly learn the real contents of my book, I have to observe as follows.

I attacked Dr. Ferrier for two reasons—the one was of scientific, the other one of personal nature. My explications concerning the first point are laid before the eyes of the scientific world, and they will have to judge of its work, not Professor Ferrier. But it is by no means right for him constantly to declare his method of research to be better than mine, without ever having compared them, which I did, since I began my experiments.

With regard to the other point, I am forced to maintain decidedly my assertion that Ferrier, in his paper published in the *West Riding Reports*, has made the most extensive use of our experiments, without mentioning our names where he should.

Our paper contained the following new facts: 1. The indication of the points for the irritation of almost all the muscles; 2. The proof that after the irritation with the induced current, secondary movement (choreic movements, Ferrier) appear; 3. The proof that epileptiform fits may follow the application of this current; 4. The proof that the loss of blood destroys the excitability of the brain. Ferrier has reproduced all these facts, but he has only mentioned our names in connection with the first one, and that too in a manner upon which I will not again comment. We regard this as an unallowable method, and we reclaim once more our property. If one take away the above-mentioned facts from Ferrier's paper, inasmuch as it regards the cerebrum, there will not be found in it a *single essentially new fact*, even when one admits that all his statements are correct. For whether there are a few muscles more or less to be excited through the cerebrum may be of some interest, but does not affect the nature of the matter. These are the reasons for my bitterness against Dr. Ferrier's proceedings; it is that he takes the credit of the greater part of our researches for himself, and endeavours to diminish the value of the rest; not at all, however, the feelings which he ascribes to me.

Least of all have I any invidious feelings with regard to his conclusions, whether drawn correctly or incorrectly; these are entirely his property. But I must still doubt that the value of an article lies in these, rather than in the facts.

With reference to the three years, which, according to Ferrier, intervene between the first and second papers of my book, I must observe, that I was one year as a medical officer in France, and during this time did not lose sight of this subject, as article No. IV. of my book proves. Besides this, during these three years I have published two other articles in Reichert and Du Bois-Reymond's *Archiv*, and these too on the cerebellum, with the contents of which Ferrier seems to be still unfamiliar, although he reviews the book in which they are republished. Notwithstanding this, if I have not worked fast enough for

Dr. Ferrier, I am willing to submit to his criticisms for that, if only science is really advanced by the little which I do. Herewith I regard this discussion as closed for my part.

BUHL, HERING, AND FRIEDLÄNDER ON PHTHISIS, TUBERCULOSIS, AND INFLAMMATIONS OF THE LUNG.

Professor Waldenburg has reprinted from no. 25 of the *Berliner Klinische Wochenschrift* for the present year, his critical review of the works of Buhl, Hering, and Friedländer, enumerated in the foot-note.*

There is so much of general interest in this paper, that we think we shall be justified in making very copious excerpts.

Waldenburg says that the first work on our list is the most noteworthy of all the recent works on phthisis and tuberculosis. Its merits have made a second edition necessary in little more than a year.

At a time when the *dicta* of Laennec on these subjects were unquestionably received by the whole medical world, Buhl was an independent thinker and an original investigator. For many long years he stood alone, and critics scarcely deigned to learn his views, much less to appraise them at their true value; but of late his experiments have secured him the high position he so justly deserves. He was the first to defend the doctrine that miliary tuberculosis is a disease of absorption (*Resorptionskrankheit*); though this theory then wanted those satisfactory proofs which the experiments of ten years later have afforded. The specific nature of its contagion, which Buhl affirmed, has been contested of late on the ground of experiments on animals; but this does not lessen our admiration for Buhl, or the value of the services he rendered; for as early as 1856 he began to seek a basis for his theories in the *post mortem* room, and had even then begun to experiment on animals. The views he promulgated in his earlier publications on the nature of miliary tuberculosis in general, and of pulmonary phthisis in particular, were novel and peculiar. Though little recognised, he adhered bravely to them, with some modifications from time to time, and now has the satisfaction of seeing them widely diffused, well known, and very largely recognised as true. Buhl's doctrines may be briefly sketched as follows.

He draws very sharp, and not generally received distinctions, between different diseases of the lungs, as to whether they are superficial or parenchymatous; and again, whether they are lobar or lobular as regards their extent. Buhl thinks the real distinc-

tion between the latter is not the mere fact of the whole of one or more lobes of the lungs being attacked in one case, whilst in another only smaller segments of the lung are affected; the real difference is rather determined by the distribution of the blood-vessels. For it is acknowledged that the pulmonary circulation is of a two-fold type: the alveoli (air-vesicles, or air-cells) of the lungs receive their blood-supply from the pulmonary arteries; whilst the capillaries of the bronchi are derived from the bronchial arteries, and these ramify beyond the terminal bronchi, in the interlobular tissue (*im inter-alveolaren Gewebe*) and even reach the pleura. Inflammations of the lung will therefore either follow the ramifications of the pulmonary vessels, and so extend almost unchecked through the pulmonary parenchyma, thus becoming lobar; or on the other hand they follow the bronchi and the interlobular tissue, and thus form a sort of network of diseased lobules, alternating with and surrounding healthy lung-tissue; thus the disease easily reaches the pleura. Such inflammations, therefore, are lobular.

Lobar inflammations for the most part attack large territories of the lung, generally whole lobes; this, however, is not absolutely essential, for they may attack smaller portions of the lung, and yet retain their lobar character. Nor does he deny that lobular inflammations may extend to a whole lobe, or even a whole lung, without, on that account, deserving to be called lobar, for they do not falsify their character, since they correspond to the bronchial capillary network, and extend to the interstitial tissues (interlobular fissures) whilst in the very midst of the diseased lobules, a larger or smaller number of lobuli will be found intact.

Croupous pneumonia is always superficial, but yet it is a lobar inflammation. Catarrhal pneumonia, contrarywise, is truly superficial also, but it is always lobular. According to Buhl it is always an acute affection, and almost exclusively attacks the lower lobes—whilst he says it never gives rise to pulmonary phthisis any more than croupous pneumonia does, and even when inspissated secretions are deposited in the smaller bronchioles and alveoli, still the parenchyma of the lung always remains healthy. However, 'atrophic alveolar and bronchial dilatation (*Ectasie*)' and emphysema may occur as chronic sequelæ of catarrhal pneumonia. Properly speaking, Buhl thinks we are never in a position to admit the presence of an actual catarrhal pneumonia, since the alveoli of the lungs (air-cells) have, according to him, no regular mucous membrane, and even the epithelium which is certainly present, forming a lining to their interior, resembles rather the endothelium of a lymphatic vessel, than an actual continuation of the bronchial epithelium. Catarrhal pneumonias are, in actual fact, 'acute catarrhal bronchiolitis,' in which the lung participates by simultaneous oedema, and atelectasis, with local emphysema and atrophy, in consequence of the accumulated secretions of the separate terminal bronchi blocking up the lobules.'

Very different is the behaviour of what Buhl calls desquamative pneumonia. Far from being superficial this extends to the parenchyma, and is a lobar inflammation, which may, however, extend itself, secondarily, from the lung to the bronchi. This is essentially an inflammation extending into the parenchyma of the alveoli, and implicating their epithelium (endothelium), which grows wildly at first and then desquamates; so that the accumulated

* Inflammations of the Lung, Tuberculosis, and Consumption.—'Lungenentzündung, Tuberculose, und Schwind-sucht,' 12 Briefe an einen Freund. Von Professor Dr. Ludwig Buhl; 2 verbesserte Aufl. München. 1873: Rudolf Oldenbourg. 8vo., 169 pp.

Experimental and Microscopic Researches on Tuberculosis.—'Histologische und experimentale Studien über die Tuberculose.' Von Dr. Theodor Hering in Warschau. Mit 6 lithographirten Tafeln. Berlin: 1873. Hirschwald. 8vo., 112 pp.

Clinical Studies of Pulmonary Inflammations, with remarks on the Normal Epithelium of the Lungs.—'Untersuchungen über Lungenentzündung nebst Bemerkungen über das normale Lungen epithel.' Von Dr. Carl Friedländer. Berlin: 1873. Hirschwald.

On Localised Tuberculosis.—'Ueber locale Tuberculose.' Von Dr. C. Friedländer. Volkmann's *Sammlung*, no. 64. Leipzig: 1873.

epithelium, thrown off, and often mixed with the backward current of the bronchial secretion, quite chokes up the air-cells. Desquamative pneumonia may be met with in three different degrees and modifications: the lowest degree assumes the form of a local manifestation of a severe general affection, such as typhus, the acute exanthemata, pyæmia, etc., and may appropriately be called 'consecutive desquamative pneumonia.' The second, severest form is 'genuine desquamative pneumonia;' it is a 'localised expression of a general diseased condition, having its seat in the lungs.' It almost invariably begins in the upper lobes, but commonly goes on to involve the lower ones also; and it either runs an acute and fatal course, or has sub-acute or chronic lung-affections as sequelæ, which resemble, and in fact constitute, certain forms of pulmonary phthisis. Chronic fatty degeneration of the lungs, on the one hand, and cirrhosis of the lungs (Corrigan's disease) on the other, or the so-called chronic, interstitial pneumonias (fibroid cirrhosis, muscular cirrhosis, slaty induration of Rindfleisch, and lardaceous cirrhosis) are only varieties, which again lead to 'compensatory hypertrophic bronchiectasis,' with formation of chronic bronchial dilatations (*lit.* caverns), and is associated with fibrous adhesions of the pleuræ. The highest degree of desquamative pneumonia, and at the same time its commonest form, is caseous or cheesy pneumonia. The casefaction depends upon a kind of internal scabbing (*Verschörfung*) or necrotic process, and is brought about by the complete shutting off of the fattily degenerated tissue from the blood-stream through blocking and obliteration of the smaller arteries, in whose external elastic coat the inflammatory process specially localises itself, as if by preference (*gerne*) in desquamative pneumonia. The cheesy degeneration involves not merely the shed epithelial cells, but also the inflamed parenchyma itself. The casefied portions hardly ever contain inspissated pus. Thus the acute stage of caseous pneumonia consists in a 'necrotic desquamative nephritis.' Caseous pneumonia never (according to Buhl) originates in the catarrhal or croupous form. The chronic sequelæ, when neither death nor absorption occurs, may be the same as have been previously mentioned as following the genuine desquamative pneumonia (chronic fatty degeneration, cirrhosis, etc.). More commonly the cheesy portions become separated (*durch Abstossung*) from the healthy tissues, and an acute process of vomica-formation (*Cavernenbildung*) is set up; or the smaller cheesy foci may shrivel and wither, whilst the surrounding tissues become cirrhotic, and may occasion a chronic formation of cavities (*vomicæ*). Caseous pneumonia constitutes one of the commonest forms of phthisis, and may be considered as one form of peribronchitis. The latter commonly extends into the parenchyma of the lung, giving rise to lobular deposits (or foci). It may be divided into a simple inflammatory form, with a chronic course, peribronchitis simplex; and a subacute, suppurative form, peribronchitis purulenta. Buhl subdivides the former again, as follows: 1. Peribronchitis fibrosa; 2. Peribronchitis nodosa; 3. Lardaceous peribronchitis. Peribronchitis nodosa, as is well known, has been long mistaken for miliary tubercles (*vide* Dr. Baxter's Translation of Rindfleisch's *Pathological Anatomy*, New Sydenham Society, vol. ii. p. 29). Casefaction may easily follow, and when, as often happens, the parenchyma of the lung becomes involved, a special form of caseous pneu-

monia (the lobular) is the result. The same process of obsolescence, and breaking down, or pushing off of the cheesy matter, may occur. Peribronchitis nodosa necrotica, and lobular gangrenous pneumonia, lobular cirrhosis, and atrophic dilatation of the air-cells and bronchioles may also be sequelæ. The severest and most dangerous form of peribronchitis is the purulent or exulcerative variety. In this the parenchyma of the smaller bronchi is infiltrated with purulent matter, the walls soften and break down; the mischief goes on, extends to the lungs, causes deposits or foci of pus and cheesy matter in the lobules, which by and by ulcerate out and form cavities. The blocking of the bronchi thus caused induces lobular emphysema (Gairdner's view.—*Rep.*), which again in its turn may set up pneumothorax. Buhl considers suppurative peribronchitis the most frequent cause of pneumothorax; and very often of empyema and pyo-pneumothorax. It constitutes one of the commonest and severest types of pulmonary phthisis, and towards its close may be associated with some of the forms previously mentioned, thus hastening the fatal end.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

GRUBER ON THE 'PROCESSUS FRONTALIS SQUAMÆ OSSIS TEMPORALIS' IN MAN AND OTHER MAMMALIA.—Professor Wenzel Gruber, of St. Petersburg, contributes a very elaborate monograph, illustrated by two large plates of twenty-two figures, to a recent number (tome xxi. no. 5, VII^e série) of the *Mémoires de l'Académie Impériale des Sciences de St. Pétersbourg*, entitled 'On the Connection of the Squamous Process of the Temporal Bone with the Frontal Bone in Man, and on the Analogy of its two Varieties in Man and in Mammalia.'

Chizeau, surgeon in the Hôtel-Dieu, of Nantes, was the first to put on record ('Observation anatomique sur une Articulation des Temporaux avec le Coronar,' *Roux, Journal de Médecine, Chirurg., Pharm., &c.*, tome xxxviii. Paris: 1772) this abnormality, which he observed on both sides of the skull of a male about forty years old. This he did, thinking that, in the case of a blow on the head, a surgeon, previously unaware of the peculiarity in question, might mistake the abnormally running suture for a line of fracture. Other observers, among them Owen, Henle, and Hyrtl, have since recorded a similar abnormality in the skulls of negroes and apes.

For a very long time—in fact for twenty-one years—Professor Gruber has been observing the above abnormal relation between the squamous portion of the temporal and the frontal bone. Out of 4,000 skulls in M. Gruber's collection this abnormality was seen in sixty; fifty-six out of these having belonged to males, and only four to females. It occurred on both sides in twenty-five cases; but in thirty-five only on one side—on the right side alone in eighteen, and on the left in seventeen cases.

Gruber recognises two forms of intercommunication, viz., (a) an immediate, and (β) a mediate form, through the intervention of an isthmus of bone—the 'processus frontalis squamæ ossis temporalis.' The immediate form was present only in two skulls, in one being bilateral, in the other on the right side only; while the mediate variety was seen in fifty-eight

skulls, occurring on both sides in twenty-four cases, and in seventeen cases on the right and left sides respectively. The abnormality occurs once in every sixty-six cases in entire skulls, but once only in ninety-four in a half-skull reckoning, the immediate form being to the mediate in the proportion of 1 to 27. The unilateral occurrence is of greater frequency than the bilateral, being in the proportion of $\frac{7}{12}$ to $\frac{5}{12}$.

Among lower mammals the absence of such intercommunication between the temporal and frontal bones appears to be constant in the Cetacea, Pinnipedia, Chiroptera, and Prosimiæ; while among the Glires, on the other hand, the communication is almost constantly present. Among the Feræ and Ruminantia, the communication is, with very few exceptions, absent, while among Pachydermata its presence is more frequent than its absence. In the Marsupialia the absence preponderates over the presence of this communication, while the reverse is the case among the Edentata. Among the Simiæ its absence and presence are about equal—the former perhaps preponderating. Among the Solidungula, and in the gorilla and chimpanzee among anthropomorphous apes, this communication is almost always at hand, while in the orang and gibbon its presence and absence are about equal.

Professor Gruber, after a minute discussion of details, concludes that the osseous communication in question consists essentially of a *process* from the squamous element of the temporal bone, and not, as might reasonably be urged, of an intercalated 'fontanelle-bone'—*ossiculum Wormianum*—fused with the said bone; and finally, that such intercommunication is a brute characteristic—nay, further, an ape-like character—a conclusion at which he has been expecting for several years to arrive.

MAGITOT ON DENTAL ANOMALIES.—Dr. Magitot contributes to a recent number of Robin's *Journal de l'Anatomie et de la Physiologie* (no. 3, May and June), a paper entitled 'Études sur les Anomalies du Système dentaire chez les Mammifères,' which is an abstract of material collected for a copiously illustrated work which he intends soon to publish. The anomalies of the dental system are treated of under the five following heads.

1. Definition, classification, and statistics.
2. Their occurrence in the various grades of mammals.
3. Their occurrence throughout the succession of human races.
4. The mode of their production, viz. their 'teratogeny.'
5. Their pathological and surgical aspects.

In the course of the paper a synoptical table of dental anomalies in the mammalia is given, which is, however, too long for reproduction here.

Dr. Magitot has collected no fewer than 1,150 instances from the museums of the various capitals in Europe, and finds dental anomalies thus distributed: Anomalies of form, 66; of bulk, 26; of number, 282; of position, 172; of direction, 178; of development, 93; of nutrition, 87; of structure, 152; of arrangement, 94.

He regards the phenomena of the hereditary transmission of an anomaly in the dental system as the result of sexual selection. This, however, rarely passes beyond two or three generations in mankind, but in the lower animals such anomalous characters can be fixed and rendered permanent by man.

J. C. GALTON

MEDICINE.

WILKS ON MANIA AS A SYMPTOM OF BRIGHT'S DISEASE.—Dr. Wilks (*Journal of Mental Science*, July, 1874) reports on three cases of Bright's disease in which maniacal symptoms have occurred.

Alluding to the asthenic state of dementia, common in cases of uræmic poisoning, Dr. Wilks states that he has reason to believe that in uræmia, certain aberrations of mind are occasionally found, but not such as would lead to perversions of moral feeling and of operations of the intellect; but rather to acute maniacal conditions.

The first case was that of a railway guard, who had been behaving in a strange manner all day, and at last had a fit and was brought to the hospital. He was then violently mad, and was put into the 'strong room;' he was the subject of marked gout, and had highly albuminous urine. After two days he became quite rational, and was then treated for this disease, which was evidently chronic, and due, in all probability, to a gouty, granular kidney.

A young woman, long the subject of Bright's disease, after having been in the hospital for some weeks, had several epileptiform fits, and at the same time was so maniacal that she had to be removed to the 'strong room.' After a few days these symptoms passed into those of lethargy, when she gradually resumed her original state.

A woman beyond middle age, in an extreme state of cachexia in connection with long-standing morbus Brightii, suddenly lost her reason, became noisy, threw herself about, and was obliged to have side boards fixed to her bed. She remained in this wild, senseless condition for a week, when she again became quiet, subsequently dying from the effects of atrophied kidneys.

Dr. Wilks speaks hesitatingly of maniacal symptoms being caused by uræmia, since a number of other causes, such as an epileptic condition of the brain, or even some impoverished condition of that organ in connection with diseased blood-vessels may be present, and also because other good observers have not, as yet, described such symptoms as characterise the brain disturbance of Bright's disease.

HENRY SUTHERLAND, M.D.

GERHARDT'S PERCUSSION-SIGN OF CHANGE OF PITCH.—Dr. A. Weil directs attention to a percussion-sign first described by Gerhardt in 1859, and apparently seldom or never taken advantage of in the physical examination of the chest, namely, change of pitch of the tympanitic (*tympanitisch*) note yielded by a circumscribed spot of the thorax with change of posture of the patient (*Berliner Klinische Wochenschrift*, 1874, no. 7). The author is careful to distinguish this phenomenon of change of pitch from two others which may present themselves under different circumstances. The first of these is 'Wintrich's change of pitch,' and is familiar as the alteration of pitch occasionally observed over pulmonary cavities, according as the mouth, or the mouth and nostrils, are open or shut. The second is 'Biermer's change of pitch;' it is related to the phenomenon which is the subject of the present paper, and depends upon the alteration in the length of the longer diameter of a cavity (with fluid and gaseous contents), by alteration of the posture of the patient.

Gerhardt's phenomenon appears to differ from that last described only in respect of the circumscribed

area over which it is elicited. In explaining its rationale, Weil says that a tymphanitic note occurring at a limited spot of the thoracic wall cannot possibly change in pitch with the posture of the patient, unless there lie behind the percussed spot a sonorous cavity the longitudinal diameter of which is diminished or increased with alteration of the patient's position. And such a lengthening or shortening cannot possibly occur unless there be present in the cavity not only air but a mobile fluid, which, in obedience to the laws of gravity, ever occupies the lowest place. In other words, Gerhardt's phenomenon depends upon the same principles as Biermer's does in pyo-pneumothorax, and indeed, may be said to be present when the sign described is elicited over a limited pyo-pneumothorax.

Two interesting cases are recorded in illustration, both ending in a confirmatory *post mortem* examination.

Weil maintains that this phenomenon is more than an interesting sign of the exact architecture of a well marked cavern; it is available for the recognition of a cavern when other 'cavernous signs' fail. Not one of these so-called signs is exactly pathognomonic, and this objection will not apply to Gerhardt's phenomenon should it be discovered. It indicates with certainty the presence of a somewhat large pathological cavity filled with air and fluid. Unfortunately, in the majority of caverns, all the conditions for the development of the sign are not present; the cavern may be more of a spherical shape, or its walls may be very irregular, or the fluid may not possess the necessary mobility; or there may not be the proper quantitative relation between the elastic and the fluid contents. Finally, the sign may vary in its occurrence from day to day.

J. MITCHELL BRUCE, M.D.

RECENT PAPERS.

On Cholera and its Treatment. By Dr. C. Franz. (*Betz's Memorabilien*, xix. Jahrgung, Heft 1.)

A Case of Purulent Inflammation of the Joints in Variola. By Herr Hohenhausen. (*Dorpat'er Medicinische Zeitschrift*, Band v. Heft 2.)

Remarks on Exanthematic Typhus and Febricula; with special reference to the Etiology, Statistics, Temperature, and Course of the Disease in Children. By Dr. E. Behse. (*Ibid.*)

SURGERY.

COLLETTI ON SIMPLE LIGATURE AS A MEANS OF PREVENTING LOSS OF BLOOD.—In *Lo Sperimentale* of June, 1874, Dr. Colletti makes a brief communication to the following effect.

He had occasion to perform amputation of the thigh on a man who had his leg crushed by a large block of marble. The patient had already lost much blood when he was brought to the hospital. Dr. Colletti applied three turns of a narrow bleeding bandage round the upper part of the thigh; this had the effect of arresting the hæmorrhage, and amputation was performed almost without loss of blood. The large vessels were tied; on removing the bandage hæmorrhage took place from one small artery only, and was arrested by torsion. Dr. Colletti relates the case to show that an *elastic* cord is not absolutely necessary.

BERGONZOLLI ON REMOVAL OF CANCER OF THE PENIS BY THE KNIFE AND BY LINEAR ECRASEMENT.—Dr. F. Bergonzolli, in a pamphlet quoted in

the *Gazzetta delle Cliniche* for June 23, relates the case of G. B., aged fifty, who had cancer of the penis, without engorgement of the inguinal glands. The only means of relief being removal, this was performed by Dr. Bergonzolli: the dorsal artery, which was very large, having been first tied. Twenty days after the operation, granulations appeared at the upper part of the urethra, and increased, presenting distinct signs of malignancy. The parts were energetically cauterised with Canquoin's paste; the eschar fell off at the end of ten days, leaving a sore with a healthy aspect, which healed in a few weeks under simple treatment.

Eight months afterwards the patient came back to hospital, the disease having returned. His skin had an earthy yellow tint, and he was much emaciated. The inguinal glands on both sides were rather enlarged and hard. The sore which occupied the stump of the penis was two inches wide, had raised edges, and was the seat of lancinating pains. Within the urethra induration extended to about two centimètres from the bulb. By a circular incision, two centimètres from the limit of the sore, the skin corresponding to its raised edge was removed, the subjacent induration being left. Above this, the chain of the *écraseur* was applied, while an assistant drew the stump of the penis forward with Museux's forceps. The affected portion was strangulated in a few seconds; a gum-elastic catheter was introduced into the bladder, and the wound was dressed with charpie. At the end of eight days, Dr. Scarenzio applied a twisted suture with three pins; one of them was thrown off at the end of three days, and the two others two days later. Healing went on regularly (there being, however, two febrile attacks), and the patient was able to leave the hospital in two months. The yellow tint had disappeared, perhaps as a result of the use of arsenic. At the end of eight months, there was no return of the disease.

A. HENRY, M.D.

REEDER ON STRANGULATED UMBILICAL HERNIA, WITH LOSS OF PORTION OF INTESTINE.—Dr. J. N. Reeder (*Chicago Medical Journal*, June, 1874) reports the case of a woman, aged about sixty-eight years, who, when first seen, was found bathed in a cold, clammy perspiration, with feeble pulse, vomiting fluids of a stercoraceous odour; all her symptoms, in short, pointing to impending collapse. Upon exposing the abdomen an umbilical hernia was found, of the size of a child's head, the integuments covering the tumour being highly inflamed, of a dark, livid colour, and on the verge of giving way from excessive distension. Upon inquiry it was ascertained that the hernia had existed for thirty years, and she had experienced frequent attacks similar to the present, which had always been relieved by fomentations. Strangulation had now occurred three days previous, and meanwhile no medical aid had been called, though her sufferings had been excessive. The operation for artificial anus presenting the only hope for relief, an opening was made through the integuments and tissues beneath, exposing the intestine, the walls of which immediately gave way from distension, giving exit to the feculent and gaseous contents of the loop. The incision in the integuments was then enlarged, exposing fully the interior of the tumour, which was found to be in a gangrenous condition, a well-defined line of demarcation appearing at the point of exit from the abdomen. This gangrenous loop was next separated and removed,

and was found to be composed of fourteen inches of the transverse colon, with a large portion of omentum. The operation was followed by a rapid disappearance of all the distressing symptoms, and recovery speedily ensued. At a subsequent date the edges of the two ends of the colon were refreshed and approximated by means of wire sutures, the result of which was that a complete union was obtained, so that the entire contents of the colon again made their exit at the rectum. It is now over two years since the closure, and the woman is in perfect health, being able to do her own housework.

MATERIA MEDICA AND THERAPEUTICS.

FLEMING ON THE TREATMENT OF RABIES AND HYDROPHOBIA.—According to Mr. G. Fleming (*Rabies and Hydrophobia; their History, Nature, Causes, Symptoms, and Prevention*; reviewed in the *British and Foreign Medico-Chirurgical Review*, July, 1874) the treatment of rabies and hydrophobia is in some respects unsatisfactory, because the disease, either in man or the lower animals, is necessarily fatal. Mr. Fleming does not pretend to have discovered any method of cure, and he condemns the conduct of those persons who, from credulity or ignorance, believe in the efficacy of remedial measures when once the malady has declared itself, and he is still more strong in his condemnation of those who, from interested motives, vaunt the discovery of specific cures for hydrophobia. But while he admits, as all must do, the incurable nature of the disease, he, nevertheless, deprecates unnecessary alarm in the minds even of those who have been injured by the bites of mad animals, because it does not necessarily follow that hydrophobia will ensue in all such cases. The somewhat prevailing practice of immediately and indiscriminately killing the animal which has inflicted the injury is obviously a foolish and mischievous one, because it is by no means always certain that the brute is really mad, and thus the human victim may be exposed unnecessarily to the torture of apprehension when, perhaps, no cause of fear exists. The advice given on this point by Mr. Fleming is that a dog suspected of or attacked by rabies, or one which has been bitten by a rabid animal, should not at once be killed and buried unless there be reason to suppose that *no person has been wounded by it*, but if a person have been bitten, then the animal should only be killed if the malady be undoubtedly present. If the case be only a suspicious one, it is well not to kill the dog immediately, but to keep it securely confined and to watch it carefully, so as to observe whether rabies really supervenes; the time required for the development of the symptoms is not long, and when they are developed the animal must be killed and buried. If, too, an animal suspected or affected with the disease escape from its owner, or from any locality, it is the urgent duty of every one to warn the police and cause strict precautionary measures to be observed.

In the case of the human subject the local preservative treatment, which alone is assuredly efficacious, must be resorted to before the absorption of the virus; and, in order to be efficacious, this treatment must be prompt, and the poison must be removed by suction, squeezing, washing, and cauterisation. If

the bitten part be within the reach of the mouth of the individual attacked, he should himself at once suck the wound vigorously, or allow a bystander to perform this duty; and it is to be observed that the danger of so doing is not very great, for, as is well known in the case of certain poisonous agents of animal origin, they are not absorbed by the digestive canal unless there be some abrasion on the mouth or lips. Expression, washing, compression, and cupping may all be employed; but, useful as these measures are, they ought to be supplemented as soon as possible by cauterisation of the injured parts, either by a powerful heat or by chemical action. Mr. Fleming does not hesitate to recommend the hot iron as undoubtedly the most convenient and perhaps one of the most effective agents that can be employed to destroy the saliva and the tissues tainted by it; and the actual cautery has this further recommendation, that several articles in common domestic use will furnish the necessary instrument. Of the chemical caustics the most efficacious are the strong fluid acids, as the nitric, hydrochloric, and sulphuric; other caustic agents, as nitrate of silver, corrosive sublimate, and chloride of zinc; and strong alkalies, as strong ammonia, and caustic potash and soda. Excision, also, is a very efficacious measure, but the greatest care should be taken that every portion of flesh likely to have been in contact with the saliva be removed. Mr. Fleming gives some very valuable and interesting tables, showing the number of cases where immunity has followed the bites of rabid animals treated by cauterisation, and of cases of death where no such precaution has been taken, and the results, as might be anticipated, are strongly in favour of the adoption of such prophylactic measures.

Mr. Fleming offers the following suggestions as to the general plans of prevention which ought to be adopted by local authorities in reference to hydrophobia. In addition to taking due care of the health of dogs when employed for useful purposes, he recommends the diminution of the number of useless dogs; and he justly urges this diminution in the case of dogs kept by poor people, both on the ground of the propagation of disease by ill-fed and dirty creatures, and also because the consumption of food required for their maintenance represents so much aliment subtracted from the poor people themselves. But, while thus advising the destruction of useless animals, he no less condemns the practice of keeping pleasure dogs by the rich, which also are a source of danger and an act of mere extravagance, and to lessen the number of such useless pets he proposes the imposition of heavy taxes. On the important subject of *muzzling*, which is somewhat indiscriminately adopted in some places, and altogether neglected in others, there is much to be urged on both sides; but, on the whole, Mr. Fleming is in favour of this measure, although recommending that the muzzle used should be efficient and humane, so that, while it prevents the animal from doing any mischief, it should allow sufficient space for it to breathe freely.

GUÉRIN ON TRANSFUSION.—In a recent discussion in Paris on Transfusion (*Bulletin de l'Académie de Médecine*, May 26) Dr. A. Guérin described his operation of putting two dogs side by side, and by means of proper instruments—applied to arteries and veins—placing their circulatory systems into such a communication that the blood of the one (after the Siamese-twins fashion) circulates through

the blood-vessels of the other. In one instance—one dog being smaller than the other—it soon became plethoric and passed bloody-stools. Dr. Guérin thinks the operation might be employed with advantage in man—that an anæmic individual might be thus anastomosed with a plethoric with benefit to both. He ignores the dangers of opening an artery, and the entrance of air into the vessels, but he admits the danger of a healthy person receiving into his system blood more or less morbid. He stated, however, that he was ready to carry out the operation on himself on the first occasion that offered. [The operation on animals is not new. It has been performed by Blundell and others, but has been regarded, and will probably still be regarded, more as an interesting physiological experiment than as having any practical value.—*Rep.*]

HENRY M. MADGE, M.D.

INHALATION OF CHLOROFORM IN STRYCHNINE POISONING.—In some reports of practice in the Brooklyn City Hospital (*New York Medical Record*) a case is recorded in which a man took five grains of strychnine with suicidal intent.

Before admission to the hospital he was given twenty grains of sulphate of zinc with effect. He had had repeated convulsions, and, while being taken from the ambulance, was seized with one of tetanic form, which plainly showed strychnine poisoning. Every muscle was rigid, and tetanus complete. Opisthotonos, irregularity of pulse, varying from 120 to 140 in the minute, with all the accompanying symptoms, were noticeable.

He was immediately placed under the influence of chloroform. The convulsions ceased from the commencement of the anæsthesia, under which the patient was fully kept for three hours. The chloroform was then removed, but the patient did not awake until six hours afterwards. He recovered.

TREATMENT OF CHRONIC DIARRHŒA.—In the Brooklyn City Hospital (*New York Medical Record*), in cases where the epithelium is stripped from the tongue, and the patient presents the cachexia of the disease, good results have been obtained by the administration of powdered ipecacuanha, in twelve-grain doses, three times daily, given mid-time between meals to prevent emesis.

This is continued until the stools are of a perfectly serous nature, when the ipecacuanha is discontinued, and four grains of oxide of zinc and six grains of extract of quassia are given in capsule three times daily.

Guarana in powder has been used in similar cases with apparently very good cures; but as it is impossible to keep trace of the patient, the permanency of the cure is not established.

TREATMENT OF ERYSIPELAS.—In the practice of the Brooklyn City Hospital (*New York Medical Record*) the following has proved efficacious as a local application in erysipelas:—Acetate of lead, carbonate of magnesia, camphor, each twenty grains, water one pint.

PROFESSOR WAHLBERG, of the Faculty of Law, has been chosen Rector Magnificus of the University of Vienna.

A PARTY of the members of the International Sanitary Congress in Vienna have had the honour of dining with the Emperor of Austria at Schönbrunn.

OPHTHALMOLOGY AND OTOLOGY.

MOOREN'S OPHTHALMOLOGICAL COMMUNICATIONS FROM THE YEAR 1873.

These are observations made by Dr. Albert Mooren, of Düsseldorf in a clinique, which, from October, 1856 to the end of 1873 had an attendance of 70,469 patients, the year 1873 contributing 5,768 towards that amount.

In *blepharadenitis* Dr. Mooren considers that epilation is carried to too great an extent, and is often a source of new irritation, protracting the already inflamed condition. He thinks it is unnecessary, as frequent fomentation of the lids causes the cilia to fall out of themselves. When irritation has been caused by this 'impetuous' treatment, he finds the application of a cataplasm for about half an hour at a time, of the greatest service.

He cannot find a connection between *xanthelasma* of the lids and any constitutional affection. If desired on account of a cosmetic effect, he removes the parts by means of Cooper's scissors.

In only one case of *Basedow's (Graves's) Disease* has Dr. Mooren seen a disturbance of vision. The regulation of the menstrual abnormalities was first attempted; and after that, iodine was given as a calumative of the sympathetic system, and bromide of potassium with lupuline where the heart's action was excessive. Preparations of iron and veratria were employed also with benefit.

Where *obstruction of the lachrymal duct* is simply the result of a catarrhal affection, the application of fomentations, lukewarm injections with a few drops of carbolic acid solution in them through the canal, and the frequent emptying of the sac by pressure, he considers the simplest and most effectual treatment.

For the *obliteration of the sac* he finds daily cauterisation of the sac by nitrate of silver in substance the best, after having tried nearly all methods.

A case of *cysticercus* under the conjunctiva, simulating a pus accumulation in the superior rectus, occurred in a girl of twelve years of age.

Chronic conjunctival affections, he agrees with the older authors, have an intimate connection with constitutional affections, and are not merely local affections. During the conjunctival inflammatory process he holds the application of cold to be an important part of the treatment, but this only so long as there is no cedematous swelling of the lids, when the use of warm linseed-meal or oatmeal fomentations is demanded.

Dr. Mooren, during 1873, saw from twenty-five to thirty cases of the *amyloid degeneration of the conjunctiva* of Professor von Cettingen. He could not determine the cause.

He believes that his already expressed opinion that cold wet days, with great changes of temperature, are peculiarly favourable to the development of *diphtheritis* is correct, and that *conjunctival diphtheritis* loses its intensity and danger the further westward it occurs from the Elbe or the Rhine. The statement that it does not occur in Belgium, he says, is a mistake.

In the cases of *brown punctiform precipitations* on the posterior layer of the cornea, which occurred to him once in about every 6,000 cases, he could discover neither subjective nor objective symptoms of irritation.

Of *cataract-extractions* $4\frac{1}{2}$ per cent. made during 1873 by Von Græfe's method were lost, and he gives from 6 to $6\frac{1}{2}$ per cent. as his percentage of loss from 1,500 operations by this method. In 13 of these cases he performed iridectomy with the purpose of creating conditions which would remove any danger arising from the artificial hastening of the maturity of an unripe cataract. Every case succeeded, and three of them had both eyes operated on. The method of procedure was as follows. From 18 to 21 days after an iridectomy had been made, the coloboma of the iris having been dilated by atropine, the lens-capsule was opened by a discission-needle in about three-fourths of its circumference. Great care was taken not to hurt the iris in any way, and disturbance of the lens-substance was avoided as much as possible, so as to obtain a homogeneous and perfect cataractous formation, which is not so apt to cause irritation of the uveal tract as when the lens is unequally hardened. After the full reaccumulation of the aqueous humour, instillation of atropine was resorted to, and the pupil kept under the influence of it till the extraction, which was performed in from 8 to 21 days, according to the arrival of the cataract at maturity. He says it is particularly applicable to posterior polar cataract.

The *cobweblike brown opacities of the capsule*, which are often only to be recognised by oblique illumination, are best removed from the pupillary region by incising them through their whole length, with a lance-shaped knife. He has done this seven times, and has had no alarming reaction.

Iridotomy, as performed by Wecker, he considers a great advance; and after having performed it in twenty-two cases, he is satisfied with the results. In cases of traumatic cataract, where bruising influences have been at work and new choroidal inflammations are liable to be set up, he considers it cannot be sufficiently praised.

A case of *monocular retinitis pigmentosa* passing into absolute amaurosis occurred, the other eye being affected with atrophy of the optic nerve, but not having the slightest trace of pigmentation. He believes that perivasculitis is the cause of the affection more frequently than is at present supposed.

In cases of *visual disturbance*, with marked congestive or inflammatory disturbances of the brain or its envelopes, leeches, application of ice to the head for from one-and-a-half to two hours at a time, and setons in the neck were the remedies he relied upon.

Nitrate of silver given internally he praises highly as the remedy in an *atrophic condition of the optic nerve* from neuro-retinitis. The injection of strychnia in such he has seen no good results from, though he recommends it in cases of anæsthesia of the optic nerve, or torpor of the retina.

In cases of *nystagmus* he is dissatisfied with the results of partial tenotomy or full detachment of the sinew, and has given up interfering with them. Two examples of this affection happened in miners, where the nystagmus only occurred during a modified light, and completely disappeared during exposure to daylight; while in the case of a child the nystagmus increased by increasing the light.

W. LAIDLAW PURVES, M.D.

CHISHOLM ON A CASE OF FORMATION OF CATARACT IN TWELVE HOURS.—Dr. Chisholm (in the *Richmond Medical and Chirurgial Journal*) reports the following curious case. A lady, aged

sixty-five, presented, when examined with the ophthalmoscope, faint striæ in the two lenses. For fifteen months Dr. Chisholm had her under observation, and examined the eyes repeatedly, without being able to discover any change. Having examined her carefully one evening, and having found the appearances just as usual, he was astonished the next morning to find the lens quite opaque and sight gone. He at once extracted the cataract, and the patient did well.

PUBLIC HEALTH.

MR. SIMON'S REPORT ON PUBLIC HEALTH PROCEEDINGS.

Mr. Simon has presented the following report to the President of the Local Government Board.

1. As the officer appointed to make report to the Local Government Board, for the annual information of Parliament, in relation to matters concerning the Public Health, and to the inquiries and other proceedings which the Board, under the Public Health Act, 1858, may have directed in such matters, I beg leave to submit to you that for the past two and a half years, and particularly during the last year, the circumstances of official and administrative transition, consequent on the Acts of Parliament of 1871 and 1872, have been such that no consistent scheme of report in general relation to the sanitary interests which are under the Board's superintendence has been possible to me; and the present Report, which regards the year 1873, must necessarily, even more than its two predecessors, illustrate the difficulty of the unsettled circumstances.

2. Of the Board's business during the year 1873 in matters of concern to the public health, the largest and incomparably the most important part was that which related to the action of local sanitary authorities under the Act of 1872 in appointing their officers of health and inspectors of nuisances. This action, which the legislature, at the instance of the Royal Sanitary Commission, had made obligatory on all the local authorities, and which included as its most important feature that for the first time the medical profession throughout the country was to be brought into official use with a view to the better prevention of disease, was, at least in part, even in the terms of the statute, tentative*; and evidently the discretion to be used by each authority in its compliance with the terms of the law would, for better or worse, be of great future consequence to the local working of the Sanitary Acts, and to eventual public estimation of the new machinery. The Board throughout the year 1873 was advising local authorities in detail on particular schemes of appointment and duty for the above-mentioned sanitary offices: but this branch of business was exclusively in the hands of the non-medical officers of the Board, and I therefore do not here attempt to give any account of the proceedings or their results.

3. Of the medical inspections which were made during 1873 in regard of local sanitary questions, and which under the peculiar circumstances of the year were but forty-two in number, I subjoin a detailed list (given in a Appendix). In one of them the inspection related to a question of hospital-accom-

* In regard of rural sanitary districts, the first appointments of medical officers of health and inspectors of nuisances under the Act must be for a period not exceeding five years.

modation, and in one to certain manufacturing processes causing nuisance to several districts; but otherwise universally the ground of inquiry was some more or less important presence of disease; and the last column of the subjoined table will enable some judgment to be formed as to the extent to which the powers of the authorities had been exercised, and the duties fulfilled, in the particular instances referred to. I may add that, as some of these local inquiries were in cases of much sanitary interest, I propose bringing their results before you, as soon as practicable, in a separate supplementary report.

4. One considerable inquiry, of a sort different from the above, was in progress during part of the year, but has not hitherto been completed. It has in view to examine the sanitary conditions under which certain industries are now carried on, as compared with the lung-diseasing conditions which existed in 1860-64, when special report on them was made to the Privy Council; and I have to state that during 1873 contributions towards the making of that comparison were furnished in inquiries of the Medical Department as follows: by Dr. Ballard in respect of metal trades at Sheffield, Wolverhampton, Alcester, Bromsgrove, and Birmingham; by Dr. Blaxall in respect of glove-making at Yeovil; by Dr. E. Smith in respect of tailoring and printing in London; by Dr. Thorne in respect of pillow-lace manufacture at Newport and Towcester, of machine-lace and hosiery manufacture at Nottingham, Radford, and Basford, of straw-plaiting at Tring and Berkhamstead, of silk-weaving at Leek, of silk-weaving and watch-making at Coventry, and of hosiery manufacture at Leicester and Hinckley.

5. The business of the Board as to vaccination in 1873 regarded, as usual, the following matters:—(a) the proceedings of local authorities and officers under the Vaccination Acts; (b) the provisions by which the national supply of vaccine lymph is maintained; and (c) the arrangements which give effect to the Order of Council regulating the qualifications of public vaccinators. (a) In superintendence of local proceedings under the Vaccination Acts, the Medical Department inspected 1,617 vaccination-districts in 354 Unions or parishes: each district-inspection involving, first, an inquiry into the state of vaccination in the district; secondly, where requisite, a notification to the authority as to defects found in the local administration of the Acts, with advice as to the changes required; and thirdly, in suitable cases, a recommendation of the vaccinator for pecuniary award, under section 5 of the Vaccination Act, 1867, out of moneys voted by Parliament for the purpose, and of which in 1873 an amount of 8,508*l.* 17*s.* 4*d.* was thus distributed. Particulars of the vaccination-inspections of 1873, and of the awards made to public vaccinators, are subjoined in Appendix No. 2. (b) Acting as National Vaccine Establishment, the Medical Department supplied vaccine lymph in answer to 9,569 applications. Particulars as to the sources whence this lymph was derived, and as to the applicants who received it, are given, with other statistics of the National Vaccine Establishment in Appendix No. 3. The stations supplying lymph for the public service were as usual specially inspected. (c) The several educational vaccinating stations, established with reference to the Order of Council which regulates the qualifications of public vaccinators, require in this relation to be inspected on behalf of the Board, and were, as usual, so inspected in 1873; but as they are for the

most part stations which also supply lymph for the public service, and as the efficiency of a station for the latter purpose greatly concerns its efficiency for the former, the inspection of them in one relation conveniently combines with inspection of them in the other, and in practice the two objects are attained in single inspections.

6. Lastly, I have to report that in 1873, and particularly during much of the second half of the year, Asiatic cholera was more or less prevalent in many parts of continental Europe, and sometimes—as at Paris, Havre, Rotterdam and Antwerp—in places which have constant and easy communication with England. In our relations to cholera on the continent of Europe there are at present some points of interest on which I may have occasion to submit to you a supplementary report: but I need not here do more than refer to the Board's actual proceedings as to cholera during the year on which I am reporting. In July, 1873, in view of the then circumstances, the Board issued (instead of an order which had been issued in 1871 by the Lords of the Council) an amended order, prescribing rules for the detention and examination of ships suspected of choleraic infection, and for dealing with cases of actual infection. (See Appendix, No. 4.) The Board also circulated among the local sanitary authorities of England a memorandum (Appendix, No. 5), which at the Board's desire I had prepared, on the precautions generally proper for local adoption under the circumstances; and particular communications on the subjects of local arrangements were also had by the Board with several of the sanitary authorities of ports. In a few cases, namely, three times in the Thames, twice at Liverpool, once at Southampton, and at least once at Swansea, the local arrangements were tested by infectious arrivals; and in most of these cases, as well as in several instances of false alarm, local inquiry was made by inspectors from the Medical Department: Dr. Buchanan, Mr. Radcliffe, Dr. Gwynne Harries and Mr. Power.*

* In one case, among those which particularly concerned London, the danger was extremely great. On July 28 a ship from Hamburg landed at Blackwall a body of eighty-two Danish and Swedish emigrants, in destination for New Zealand. During the voyage no sort of illness, except sea-sickness, had been noted among them, and therefore no objection to their landing had been raised under the Board's recent order; but almost immediately afterwards, when, to await re-shipment, they had settled themselves in various lodging-houses in Whitechapel, and were legally in the position of ordinary residents in London, it became evident that cholera was among them; and the Board's first information of this state of the case was due to the courtesy of a private medical practitioner who had been called to the sick. As soon as his letter was received by the Board, communication on the subject was had by the Medical Department with the authorities and others who were concerned, and by great exertions of all, under a state of law in which everything depended on voluntary exertions on one side and absence of objection on the other, the emigrants by July 31 (the day on which they were to have been re-shipped for New Zealand) were collected and placed in isolation on the port-authority's hospital-ship 'Rhin,' off Gravesend, to remain there under medical care. Then the houses where they had been temporarily lodged, and which meanwhile had been under close observation by the Whitechapel officer of health, Mr. Liddle, were finally disinfected. Of the eighty-two emigrants, twenty-eight sickened and eight died; but to our own population there was no extension of the disease. The removal was managed by the emigration agent, to whom the great importance had been explained of getting all the emigrants together into suitable quarters where their state of health could be medically watched and cases of incipient cholera be isolated; but this action, taken by him with the co-operation of the recently appointed able health-officer of the port, Mr. Harry Leach,

The above account refers, as I have stated, to a period of official and administrative transition, during which it is impossible to represent the Local Government Board as directing inquiries under the Public Health Act, 1858, in any definite relation to the new sanitary system of the country; but with the end of the year 1873, that period of transition may be deemed to have nearly accomplished itself; and I may hope that, before the next season arrives for the submission of the Annual Report under the Act of 1858, it may have become possible to begin in a really useful sense such new succession of reports as the changed conditions of sanitary administration seem henceforth to require.

If, in that hope, I may venture to indicate from beforehand the purposes which it seems to me the reports under the Act of 1858 must in future be expected distinctively to fulfil, I would say that, whatever else they may be expected to do, at least they must be expected to set forth the knowledge which the Board, through its department of sanitary inquiry, obtains, with regard to the practical effect of the laws which are in force for the prevention of disease throughout England. It is the common conviction of persons who have most studied the subject, that the deaths which occur in this country, (now about half a million a year) are by fully a third part more numerous than they would be if existing knowledge of the chief causes of disease were reasonably well applied throughout the country; and I need hardly add that, if thus some 125,000 cases of preventable suffering annually attain their final record in the death-register, that vast annual total has the terrible further meaning that each unit in it represents an indefinite (often very large) other number of cases, in which preventable disease, not ended in death, though often of far-reaching ill-effects on life, has also during the year been suffered. The Local Government Board, viewed as a central board of health, and the more than 1,500 district authorities which, each with its appointed medical officer of health, locally administer the health-laws, may be regarded as having had their respective functions assigned to them in special and systematic relation to that state of things; and it will be peculiarly with regard to that relation—namely, as rendering account of the central share of the responsibility, that the future annual reports of the holder of my office will, I apprehend, have their essential meaning.

In the sanitary administration of England, there are certain prescribed cases (chiefly in regard of local powers of rating, mortgaging, and bye-law making) where the local action cannot be taken without previous express approval of the central authority; and no doubt the central authority, in its exercise of that responsibility, has often been able to influence very advantageously the course which local authorities have proposed to take. Also it possesses, in supposed reserve for great epidemic emergencies, a power to issue directions for certain purposes under the Diseases Prevention Act,

was without any support from law. That he was able to do as advised, and to do it in such a way as to transfer an immense danger from the heart of London to a comparatively safe distance, was due to the goodwill of the port-authority, who made their Gravesend ship available for the relief of Whitechapel; and it seems to me that by acting in that liberal spirit the Corporation of the City helped London out of a serious difficulty. Dr. Buchanan, assisted in part by Dr. Gwynne Harries, was the inspector who visited in this important case.

1855. But with exception of such special cases, the function of the central authority in regard of local sanitary action is primarily one of mere observation and inquiry. Not itself authorised to interfere in such action except where the results are at fault, it watches and interrogates results; and it is distinctively in this relation to the sanitary interests of the country that the Local Government Board will be represented by its ordinary proceedings under the Public Health Act, 1858. For the eventual test of local sanitary administration will be the success with which it prevents disease; and, in each case where the preventable disease is not prevented, the Local Government Board can, by skilled inspection under the Public Health Act, 1858, satisfy itself as to the circumstances and causes of the failure: giving thereupon such skilled advice, or proceeding in certain extreme cases to issue (under § 49 of the Act of 1866 or under the Diseases Prevention Act) such orders and directions, as the particular occasion may require.

What standards of success in disease-prevention ought to be taken as satisfactory by the local authorities which now have to act in that matter, and by the central authority which has to superintend their action, is a question on which I need not here submit more than very few general observations. Our large annual total of preventable deaths receives probably from most or all of the fifteen hundred sanitary districts of the country contributions, larger or smaller, which in their respective degrees are evidences of sanitary unsuccess; and I would therefore point out, as of very important bearing on the whole tone of sanitary administration, that in the death-accounts which have henceforth to be critically examined by both central and local authorities, figures which arithmetically make but little show may, for administrative purposes, have immense meaning. One or two deaths by enteric fever, noted in a quarterly return of the Registrar-General in regard of some village or small country town may in hundreds of instances correspond to long-continued local conditions of scandalous filth and unwholesomeness: one or two deaths by scarlatina or small-pox, almost unnoted in regard of some considerable town, may represent the beginning of what, three months later, will be a terrible epidemic, agitating the community with distress and fear, and adding prodigiously to the whole year's death-rate of the place; and it is with reference to considerations like these that records of even single deaths will now have to be medically read and interpreted. In regard of such epidemic visitations as are aptest in this country to excite local alarm, and to be felt as conclusive appeals for central interference, it may appear a mere truism to say that, in proportion as the disease is present, the time for preventing it is past; but for practical purposes it is indeed all-important to remember that sanitary administration has its hopes of success in preventing, not in arresting, great epidemics; and that if warnings are not taken from the smaller excesses of disease, catastrophes, not further warnings, may be next to come. It seems almost unnecessary to add that a method of procedure which waits for death as its ground of action may peculiarly dispense with cumulative proofs; and that, as no one preventable death can any longer be remedied in regard of him who has suffered it, so the record of it may the more emphatically claim to be read as a protest on behalf of others.

The vigilance which the Local Government Board has to exercise in regard of the local prevention of disease in England will of course not universally need to express itself in the form of inspections. As regards the Board's giving of advice or assistance to local sanitary authorities and their officers, clearly this would be limited, first, by the fact that, unasked, it could not properly have place except where the local results showed need for it; and secondly, by the consideration, that, in the large and permanent interests of sanitary government, a maximum of local self-reliance and a minimum of central intervention are in themselves important aims. And even as regards mere inquiry into the facts of what is locally going on, correspondence (often bringing in the reports of local officers) will in some cases afford the Board all adequate information for its purpose.

On the other hand, and provided due regard be had to the above considerations, the advantage which may be gained to the sanitary progress of the country by inspections conducted, at least for many years, on a sufficiently large scale, under the Public Health Act, 1858, can hardly, I think, be over-estimated. It has, I believe, been the experience of the Local Government Board in those branches of its administration which do not concern the public health (as particularly in its poor-law and common municipal business) that the personal agency of inspectors of the Board, as distinguished from mere inquiry and advice by letter, is, in a very large proportion of cases, essential to the success of the work: first, in order that the Board may competently understand the local conditions or proceedings which it desires to judge; and secondly, in order that, in a degree and with an effect which no letter-writing can attain, it may make to the local authorities with which it has concern precisely such representations, and may give them precisely such advice, as the particular local circumstances require. The Board would probably not expect experience of a different kind in its future, essentially medical, province of sanitary superintendence; and indeed, as regards this province, my own experience enables me to say with certainty that it is peculiarly one in which clerical, as compared with inspectorial agency, would show itself inadequate to the purpose. By skilled inspections under the Public Health Act, 1858, on such a scale as practically to represent a central audit of local death-accounts, and an exertion of central influence or authority in favour of more active or better-directed local efforts in places where human life had not been sufficiently cared for, the Local Government Board would be in reality, though only in the limited sense which the law prescribes, a Board of Sanitary Superintendence for England.

Briefly then, as regards the Annual Reports to be hereafter made under the Public Health Act, 1858, the state of the case, as I apprehend it, will be this. The Local Government Board will from time to time determine what degree of central vigilance as to the local prevention of disease shall be represented by its proceedings under the Act, and will regulate in accordance with such standard of work the staff by which the work has to be executed. It will be for the holder of my office annually to lay before the Board a report of the proceedings so taken: substantially a report on the new sanitary administration of the country, as examined by the Board from the standpoint of results; and which, so far as means for it exist, would aim at exhibiting, for the information of Parliament, what, year by year, are the chief

existing excesses of disease in the several sanitary divisions of England, and what the relation of such excesses to insufficiencies of law or administration. Incidentally to the above, which I have regarded as the essential business of future annual reports under the Act, it would probably be of advantage to the public service that the reporter should use the same annual opportunity for submitting to the Board, with a view to publication, such new knowledge as the Medical Department might during the past year have acquired with reference to the prevention of disease, and such new memoranda of advice on sanitary subjects as the growing experience of the Department might be held to justify.

From among the many points of local relation which the Board's sanitary superintendence must include, there is one which in conclusion I will specially mention: not indeed without confessing that, in love and honour for my own profession, I regard it with warm personal interest; but believing that I may, nevertheless, without partiality describe it as of fundamental interest to the working of the scheme of recent legislation. While watching, from the point of view of results, the action taken by local authorities throughout England for the better prevention of disease, the Board will be superintending the exact province of work for which the respective local authorities under the Act of 1872 are required to appoint their medical officers of health; and the inspections under the Public Health Act, 1858, will, therefore, so far as they extend, give the Board knowledge of the working of that new institution in the various forms in which it is being tried throughout the country, and in which, in regard of about half the number of cases, the trial is with the Board's part payment and particular responsibility. Such inspections, too, as bringing the Board's Medical Department into direct relation with the local officers of health, and giving the Department opportunity to contribute any assistance in its power to the success of the local institution, will, where they extend, represent an object which the Royal Sanitary Commission, in making the recommendations on which the Public Health Acts of 1871 and 1872 were founded, put forward as an element of their scheme. As regards that intention of the Royal Sanitary Commission, I need hardly say that, to any holder of my office, it must always be among the highest of ambitions to be able to see the experience of this department really conducive to the information and influence of younger fellow-labourers in other parts of the same great field of public service; and it would be affectation in me to deny that, during many early years of the new organisation, relations in that sense between the central and local services may often be of important, and sometimes of indispensable, use to the latter. I would, however, also express my confident expectation that, though from the nature of the case the relation in these earlier years must chiefly consist in assistance which the central office can so render, succeeding years will more and more bring the central office under obligation to local contributors of knowledge, and to local illustrations of progress. And year by year it will surely grow to be among the most useful, as it must also be among the happiest, duties of the annual reporter under the Public Health Act, 1858, to represent, for the information of all the officers of health of the kingdom, such additional fruits of scientific observation, and such new evidences of practical success, as will have come to the Board's knowledge from among their number.

ON BUTTER.—In *Food, Air, and Water* for July there is a paper giving the result of an analysis of butter in Dr. Hassall's Laboratory at Ventnor. In it the curious statement is made that butter contains 'a considerable quantity of butyric acid, which amounts to nearly ten per cent. of the butter-fat.' It is furthermore stated that the insoluble fatty acids in pure butter-fat amount to from 85.48 to 85.71 per cent., whilst the insoluble fatty acids in mutton-fat are 95.6 per cent. Based on these propositions a method of distinguishing between butter-fat and certain other fats is propounded.

[That pure butter-fat contains about ten per cent. of butyric acid is somewhat startling to a chemist. A few weeks ago I had occasion to determine the quantity of butyric acid present in butter, either in the free state or in the form of butyrate of glycerine. From 10 grammes of excellent fresh butter, the history of which I know, after saponification with caustic potash, I could not obtain more than 0.01 gramme of soluble and volatile fatty acids. Instead of 10 per cent. of butyric acid, I got not more than 0.1 per cent.]

Rancid butter appears to yield somewhat more butyric acid than fresh butter; thus from rancid butter I got upwards of 0.5 per cent. of volatile fatty acids. Possibly the small quantity of butyric acid in rancid butter is developed by a kind of fermentation.

The further statement that butter-fat yields only 85 per cent. of insoluble fatty acids whilst mutton-fat yields 95 per cent. is very interesting, if true. It would seem to point to the existence of mono- or di- instead of tri-palmitate of glycerine in butter.

There is, however, a much simpler mode of explanation. Possibly the butter-fat was not quite dry. —*Rep.* J. ALFRED WANKLYN.

REVIEW.

Les Eaux Thermales de l'Île de San Miguel, Açores, Portugal. Lisbon, 1873

Of late years we have heard very little of Portugal in any way, and least of all of its medical resources. We now no longer send patients to Lisbon; and Madeira, which has not recently distinguished itself by readiness to assist our hospitals, is the only Portuguese possession to which a portion of our consumptive patients has remained, (and with very just reason) pretty constant. Yet Portugal abounds in admirable mineral waters; and if the rest of Europe hears of them only through the casual notices of travellers, yet more than two hundred years ago eleven warm and twenty-two cold springs were in use—and one of the queens had established an ample establishment and hospital with accommodation for the poor at Caldas near Obidos.

One of the Azores, that picturesque and prosperous group of islands, best known to us for supplying us with oranges, has long been known to possess thermal waters—for they were described in the middle of the sixteenth century by Dr. Gaspar Fructuoso.

It is extremely creditable to the Civil Governor of the Island of St. Michael, that he has procured a French chemist, M. Fouqué, to analyse the waters carefully, and has printed at length the medical observations of Dr. Philomeno da C. Mello Cabral during several years, thus giving a complete account of the nature and of the medical action of the waters. The

island of San Miguel is like that of Ischia, volcanic, and like it abounds in waters of high temperature, containing soda and common salt. The temperature of its waters is much higher, while the amount of mineral constituents is considerably less than in the case of Ischia. A litre of Caldeira Grande contains 1.818 grammes of solid constituents, chiefly carbonate of soda and chloride of sodium, in nearly equal parts. It is needless to enter further into much detail about waters never likely to be visited by English. But the springs have been divided into—1. The most important ones, containing a large quantity of silica and salts of soda, with a little lime of magnesia, and abundance of carbonic acid; some of these are explosive, and practically geysers; 2. Those containing a little iron; 3. Those containing sulphur; 4. Such as are mixtures of the foregoing with sea water. Weak alkaline waters of high temperature are of use in a great variety of affections, especially in rheumatism and in urinary complaints. These springs are chiefly situated in the Furnas valley, where there is a good hotel and bathing establishment. The island is described as picturesque, containing good hotels, a club, and a theatre.

J. MACPHERSON, M.D.

MISCELLANY.

MUNIFICENT BEQUESTS.—A gentleman of Milan, named Ponti, has left his property, amounting to 825,000 francs (33,000*l.*) to the three Academies of Science in London, Vienna, and Paris, and to the General Hospital in Vienna, the last-named institution being also entitled to any increase beyond the original sum. As the value of the property is now estimated to be 72,000*l.*, the hospital is likely to receive a large share. It is said, however, that the relatives of the deceased intend to oppose the will on the ground of the mental incapacity of the testator.

ÆSCULAPIUS v. BACCHUS.—At the meeting of the American Medical Association, held in Chicago, a series of resolutions deprecating the habitual use of alcoholic drinks were submitted to the meeting, and passed. These resolutions, drawn up by Dr. Horner, are identical in spirit and objection with the declaration proposed by Mr. Ernest Hart two years since, and signed by a large body of the medical practitioners of the United Kingdom. Looking to the great influence exercised by medical men in modern society, in all matters of hygiene and diet, it is gratifying to find opinions of so much moment to the well-being of all classes, spreading from our small island, throughout the continent, and even across the Atlantic.

MEETING OF THE AMERICAN MEDICAL ASSOCIATION. At the meeting of this Association, which took place at Chicago in June last, amongst the papers read were the following. Dr. L. D. Bulkley, of New York, read a paper on 'The Management of Eczema.' Dr. D. J. Farnsworth, of Iowa, read one on 'The Therapeutics of Ammonia,' which was referred back to the author, with a request to publish in some medical journal.

An elaborate paper on 'Mechanism of the Cephalic Circulation,' by Dr. R. A. Vance, of New York, was read, and referred back to the author, with a gracious permission to him to publish it in any journal at his own expense. Dr. F. R. Burcham, of Flint, Michigan, fared better at the hands of his professional brethren. His paper on 'Uræmia,' after a somewhat extended discussion, being referred to the Committee on Publication. Dr. McLaughlin rose in defence of the old-fashioned blood-letting. Forty years ago he had bled freely, and believed he did right. He did bleed now, and thought he was right now as well as then. Men had changed, and were not sick now

in the same way they used to be. He also believed that the same medicine would produce directly opposite effects, according to the dose. Dr. Quimby liked the address because of the happy medium it struck, which was just the thing the profession needed. The tone of the paper on the use of alcohol suited him, it was the most abused of drugs, and the profession are largely responsible for intemperance. Dr. Seguin gave an exhibition of the workings of his system of 'Mathematical Thermometry.' The thanks of the Association were tendered to the doctor, and an outline of his system was ordered to be incorporated in the minutes. In the section of surgery and anatomy, Dr. Dunlap, of Springfield, Ohio, read a paper relative to an operation performed by him in removing a very large tumour from near the sternum. The operation was successfully performed, and the patient survived the operation six weeks. The tumour removed was a very large one, weighing three pounds, and another weighing five pounds was removed after death. Dr. E. M. Moore, of Rochester, read a paper on epiphyseal fracture of the superior extremity of the humerus. In the course of his communication Dr. Moore stated that in these cases reduction is effected by carrying the arm forward and upward to the perpendicular line. Retention is effected by moderate extension while bringing the arm down by the side, maintaining this slight extension until dressings for the purpose of continuing it are applied. Swinburne's method fulfils the indications easily and perfectly. Even if not restored the arm soon becomes useful, and nature gradually rounds off the prominence of the diaphysis and elongates the capsule at the lower border, allowing the motion upward to improve.

HYDROPHOBIA.—New York has lately somewhat severely suffered from this disease. It has proved fatal in five cases; and one sensitive person sank under nervous excitement resulting from fear of it. Dr. Hammond, of New York, asserts that he has made an important discovery in relation to the nature of this malady. He submitted the medulla oblongata of the last victim to microscopic examination, and discovered black spots, which proved to be coagulated blood, near the origin of the spinal accessory nerves and the pneumogastric nerves. Hence it is assumed that hydrophobia is really a nervous disease, and not a blood-poison, as has been generally supposed. Dr. Hammond's attention was directed to the spinal accessory nerves by the symptoms that indicated their operation upon the throat, larynx, and pharynx, in the patient's inability to swallow liquids. The first spasms were in the muscles of the throat. The presence of extravasated blood at the origin of this set of nerves is declared to have proved the accuracy of his supposition. The point of lesion is supposed to have been discovered, and the way to future investigation is plain, granting, of course, the certainty claimed for this discovery of Dr. Hammond, who stands, with Dr. Brown-Séquard, at the head of the medical profession in America upon diseases of the brain and nervous system. From the census returns, it appears that for the last ten years, in the United States, 63 deaths from hydrophobia have taken place. Of these 33 were in the Southern States, 22 in the Northern, 6 in the Western, and 2 in the Eastern. The largest number in one State was 22 in Louisiana. The New York records of the past twenty years show 57 cases, being a pretty uniform rate, hardly increasing as fast as has the population.

WATER-SUPPLY.—The following circular has been addressed by the Board to the several sanitary authorities:—

Local Government Board, Whitehall, S.W.

June 29, 1874.

SIR,—I am directed by the Local Government Board to state that, in consequence of the long continuance of dry weather, their attention has been drawn to the fact that in several parts of the country the ordinary water-supply has become considerably diminished, and there is reason to be apprehensive that, as the summer advances, the evils arising from this cause will be much more seri-

ously and extensively felt. Among such evils must be included the very serious danger to health which will arise if, for want of a better supply, recourse is had to polluted water.

Under these circumstances, the Board think it right to point out to the sanitary authority the importance of taking steps to inform themselves fully of the nature and extent of the existing water-supply in the several parts of their district, and the sources which may properly be relied upon for the purpose of supplying any present or prospective deficiency.

The Board need scarcely remind the sanitary authority that one of the chief duties which the Legislature has imposed upon them is that of providing their district with a sufficient supply of water; and the Board cannot too strongly impress upon them the expediency, at the present time, of adopting every available precaution for the storage of wholesome water in those localities which are likely to suffer from drought.

With this view it is desirable that the sanitary authority should make a careful examination of the existing sources of supply, so that they may, as far as practicable, be economised, and that steps may be taken where necessary to obtain an additional supply.

If any part of the district is within the limits of a water-company, the attention of the company should, with the like object, be directed to the points lastly referred to.

The sanitary authority are aware that if there is no such company, they themselves may not only construct and maintain water-works, but also dig wells, and do any other acts necessary for providing a water-supply for their district.

It is, therefore, competent for them, in case of need, to provide by means of water-carts, or other like expedients, a temporary supply for domestic use, and for flushing sewers and drains; and the cost attendant upon the adoption of this suggestion, which would be comparatively small, might be wholly or in part reimbursed by a moderate charge for the accommodation.

I am directed to add, that the greatest care must of course be taken with regard to the purity of the water which the sanitary authority distributes; that no supply should be used which is not perfectly safe from pollution by excremental matters or other filth; and that other impurities, if the water contains such, should be removed from it by filtration, or otherwise, before it is delivered for domestic use.—I am, sir, your obedient servant,

JOHN LAMBERT, Secretary.

NOTICE.

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The London Medical Record.

WEDNESDAY, JULY 29, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BUHL, HERING, AND FRIEDLÄNDER ON PHTHISIS, TUBERCULOSIS, AND INFLAMMATIONS OF THE LUNG.*

(Continued from page 450.)

Miliary tubercles may supervene on the varied forms of phthisis described above, and are then due to absorption (resorption). Buhl indeed holds strongly to his earlier views of the specific nature of the cheesy material, which, in an overwhelming number of cases, leads to infection—for amongst 300 cases of miliary tuberculosis only 10 per cent. were found without a cheesy focus; that is, he still holds them generally true, but now approximates his theories more to those of his reviewer, since he admits that the absorbed material, which leads to the production of tubercles, need not necessarily be derived from a cheesy deposit, but may be derived 'from retrograde metamorphosis, which may be generated, distributed, and developed by altered conditions of general nutrition' (p. 119). The concession Buhl is inclined to make (in this second edition) that the *materia peccans* may consist of formed (corpuscular) elements; but in the sense that they may be bacteria, derived from the cheesy foci by means of the circulation of blood and lymph, his reviewer is disinclined to accept. Too much is already ascribed to bacteria to make us willing to still further complicate the vexed questions of tuberculosis by introducing these organisms. Waldenburg holds the opinion, which has been forced upon him by experiments, that miliary tubercles result from the absorption of formed elements, and not from absorption of an unformed contagion dissolved in the blood-plasma, or other juices (*Säftmasse*). It seems to him easier to admit that a great number of solitary finely divided foreign bodies may cause a great number of isolated centres or foci of disease (miliary tubercles), than to understand why fluid or volatile matters uniformly disseminated in the blood-plasma should pro-

duce a great number of isolated tubercular deposits. Buhl, and all who have worked at this subject, consider this essential; and they further distinguish between local infection through contiguity, which probably takes place through the lymphatics and extravascular channels (*Säftcanäle*), and the general infection due to blood-vessels. He gives the name of *Phthisis combinata*, first proposed by his critic, Waldenburg, to this supervention of tubercles on caseous pneumonia. For absorption and infection to be possible, the cheesy deposits must be imperfectly encysted. Miliary tuberculosis has its seat in the connective tissue of the lymphatic vessels: it is a lymphoma in Virchow's sense of the word. Giant-cells are not peculiar to tubercles, and are not even constant elements of these, although for the most part, at least at early periods, they will be found in them. Besides secondary inflammations producing tubercles, by means of setting up cheesy deposits, Buhl admits a specific 'tubercular inflammation' one which not merely accidentally, but necessarily and peculiarly carries with it the production of tubercular lymphomata (deposits of miliary tubercles) simultaneously with the inflammation; these, however, are strictly limited to the inflamed tissues affected. Caseous pneumonia, tubercular pleuritis, pericarditis, peritonitis, and meningitis, give rise to such tuberculous inflammation. Waldenburg suggests that this might as well be called 'inflammation with formation of tubercles,' since Buhl and every one else admit the primary inflammatory type; and the tubercles appear to be secondary to this, whilst the true causes are yet unknown, or controverted. Waldenburg thinks, and the translator believes rightly, that Buhl draws somewhat too sharp lines of demarcation between lobar and lobular, superficial and parenchymatous inflammation. Nature is less arbitrary, and in practice the diagnosis is often an impossibility, for lobar and lobular inflammations are frequently combined in the various forms of phthisis. Nor does he approve much more of the innocent-looking distinction between superficial and parenchymatous inflammations. We all make it, but not in the same sense as Buhl, who scarcely allows any transitional forms. His chief merit, we think, is that he has established the parenchymatous nature of the inflammations which set up phthisis (the collective name of 'parenchymatous pneumonias' would seem most applicable), and has separated desquamative pneumonias from simple catarrhal ones, with which they were previously confounded. (Reinhardt's gelatinous pneumonia [A.D. 1850] corresponds very nearly to Buhl's desquamative pneumonia.) This, we think, will be a permanent gain, though the theories Buhl appends to the facts may be displaced. Buhl considers all secretions found in the air-cells as secondary; consisting for the most part of desquamated epithelium which has grown wildly, though he admits that inspissated pus, sucked in from the inflamed bronchi, may also be found there. He totally denies Virchow's views of a primary bronchitis, with catarrhal pneumonia, leading to a secondary parenchymatous inflammation of the bronchi and air-cells through accumulation and metamorphosis of the secretions; though he admits that foreign bodies from without (dust, particles of grit, etc.), may set up parenchymatous changes. Waldenburg thinks the lessons of general pathology teach us otherwise. This is the real battle-ground as to Buhl's doctrines. We must sever fact from theory. It is a fact that the parenchyma

* Inflammations of the Lung, Tuberculosis, and Consumption.—'Lungenentzündung, Tuberculose, und Schwindsucht,' 12 Briefe an einen Freund. Von Professor Dr. Ludwig Buhl; 2 verbesserte Aufl. München. 1873: Rudolf Oldenbourg. 8vo, 169 pp.

Experimental and Microscopic Researches on Tuberculosis.—'Histologische und experimentale Studien über die Tuberculose.' Von Dr. Theodor Hering in Warschau. Mit 6 lithographirten Tafeln. Berlin: 1873. Hirschwald. 8vo, 112 pp.

Clinical Studies of Pulmonary Inflammations, with remarks on the Normal Epithelium of the Lungs.—'Untersuchungen über Lungenentzündung nebst Bemerkungen über das normale Lungen epithel.' Von Dr. Carl Friedländer. Berlin: 1873. Hirschwald.

On Localised Tuberculosis.—'Ueber locale Tuberculose.' Von Dr. C. Friedländer. Volkmann's *Sammlung*, no. 64. Leipzig: 1873.

of the lungs and bronchi are implicated in phthisis; it is theory that this inflammation is always a primary affection, and never secondary. Buhl believes that the sputa afford proofs of the correctness of his theory. He states that the sputa of desquamative pneumonia, *i.e.*, the primary stage of most forms of phthisis, are highly characteristic and even pathognomonic. They do not consist, we are told, of viscid pus, but are distinguished by the presence of a great quantity of alveolar endothelium (epithelium of the air-cells) with growing nuclei, with exudation-corpuscles (granule-cells), free fat-granules, and ciliated cells (*Flimmerzellen*) to which by and by deeply pigmented cells are added, and as the disease goes on, a gradually increasing myeline degeneration. From the mass of myeline cells, and of free myeline, the duration of the disease may be approximatively estimated. This description is so novel, and so contradictory to our present views, that it needs further confirmation. Hitherto the sputa have been known to contain some normal, and some fattily degenerated mucus and pus corpuscles, with free fat-granules; and at a later date, elastic fibres, sometimes myeline also, though this has not been considered peculiar or specific; and, as in other sputa, other epithelium also. But to find sputa consisting wholly, or even in great part of alveolar endothelium, in various stages, is so novel that medical men ought to direct special attention to this point. Buhl also insists upon the pigment being formed from the blood-colouring, whilst modern researches seem to indicate its origin from without. Buhl omits to say if his lardaceous degeneration gave the chemical reactions of amyloid material. His statement that glands in the horse is fully developed tuberculosis, is certainly as yet quite unsupported by facts. Buhl confirms Waldenburg's opinion, founded on a long series of cases, that a primary laryngeal affection often precedes pulmonary phthisis, which is secondary to the throat mischief. The primary affection he has observed consists in perichondritis of the larynx; and, according to Buhl, this is an analogous process to peribronchitis.

Hering's work is of great value, though not much noticed as yet. All experimenters who do not wish to tread in beaten paths should study his pamphlet. Hering's investigations were partly experimental, partly microscopic. A series of eighty-two inoculations of tubercles and cheesy material, partly fresh, partly preserved in spirits, and lastly of a variety of materials (*indifferenten Stoffen*), led to practically the same results, as the reviewer had previously maintained. Hence it follows that a true milary tuberculosis, exactly corresponding to the human disease, may be produced in rabbits and guinea-pigs, not only by the inoculation of tubercles, but also of other materials, especially non-tuberculous pus; and hence that tuberculosis cannot be regarded as a specific disease. Six experiments introducing tubercles into the stomach of animals gave negative results. Hering has made several fresh points, especially as to giant-cells. He found these, like other observers, not only in human milary tubercles, but also in those produced in animals by inoculation; but in neither one nor the other were giant-cells constant elements. Hence they can scarcely be considered to have a special significance. Further, Hering has demonstrated giant-cells in tissues which were certainly not tuberculous. Besides generally admitted facts, he found them in a case of neuroma fibrillare of the optic nerve. In the course of his

researches, Hering formed the opinion that the so-called giant-cells of tubercle and of analogous formations correspond in all probability to sections of lymphatic vessels. The finely granular matter which fills them up he takes for the coagulated contents of the lymph-vessel, their embedded cells for endothelium, their forms being altered by luxuriant growth. This, though hypothetical, deserves careful attention. These uncanny (*ungeheurig*) cells with a hundred or more nuclei are foreign to all our common notions of cells, and anything which would take them out of this category is attractive. Histologists ought seriously to grapple with this question.

Hering distinguishes two forms of milary tubercle: the first, or endothelial tubercle, consisting of elements which may be directly attributed to increased production (*Wucherung*) of the endothelium or perithelium of the subadventitial vascular spaces (Rindfleisch's *Pathology*, vol. ii. p. 299, Dr. Baxter's translation); the second form, or reticulated tubercle, containing a network with giant-cells. But, as he considers the latter to be sections of lymphatics with increased endothelium, he is forced to admit a combination of both forms; that both must be considered as true tubercles, and have this in common, 'that in both, the endothelioid cells are of chief histologic importance, and irritation of these appears to be the starting-point of the circumscribed nodules.' Hering is specially inclined to trace back tuberculosis to irritation (*Reizung*). Both forms of tubercles 'must be considered as only circumscribed milary foci produced by formative or plastic inflammation.' The first form is most commonly found on the surface of serous membranes, and seems to be directly due to preceding inflammatory processes, without any extraneous focus of infection being apparent. Hering, like others, considers 'tuberculous inflammation' to be a proper name for this variety. For the second or reticular form, which occurs in various organs of the body, after certain previous inflammatory processes, we can, in the vast majority of cases, demonstrate infection from cheesy deposits.

Hering's investigations make him believe that in the so-called 'acute milary tuberculosis of the lungs,' the little nodules which occur are not generally true tubercles, but recent, disseminated, and circumscribed pneumonic foci. The microscope alone can distinguish these from true tubercles also occurring in the lungs. The so-called tuberculous ulcers in the larynx and bowel, Hering, in common with his critic and others, believes to originate, not in softened tubercles, but in inflammatory affections of the mucous membrane and its follicles, with which a secondary milary tuberculosis in contiguous parts may [by infection?] associate itself.

Hering at least has one great merit—he is thoroughly familiar with all that has been done beforehand in this vast subject.

(To be continued.)

ON INJURIES TO THE EYE IN THEIR MEDICO-LEGAL RELATIONS. BY PROFESSOR ARLT, OF VIENNA.*

(Continued from page 290.)

II.—WOUNDS OF THE EYE, IN WHICH A FOREIGN BODY IS NOT LEFT IN THE ORGAN.

19. Wounds of the *Conjunctiva* are generally easily recognised if they do not affect the transition-

* *Wiener Medizinischer Wochenschrift* May 23.

part (*Uebergangstheil*), and do not acquire a high importance.

The first indications of the injury are hæmorrhage, ecchymosis and swelling of the edges, and much gaping of the wound. Subsequently, after marked retraction or actual loss of substance, the surface of the wound becomes covered with a light grey layer, under which granulations are developed, which either bring about union of the edges, or become more or less elevated and then gradually narrowed at the base, becoming at last attached only by a narrow pedicle. They may be easily cut away with scissors; but, if they have a broad attachment, must be frequently touched with nitrate of silver. The resulting cicatrix may be imperceptible, linear, or radiated; in the latter case, it is firmly adherent to the sclerotic. It is only when the loss of substance has been great, and a large quantity of the neighbouring conjunctiva has been drawn in for the purpose of filling it, that the movements of the eye and the escape of the tears are impeded.

When the wound implicates the conjunctiva palpebrarum and also the opposite conjunctiva bulbi, care must be taken to prevent symblepharon. The application of a suture is no longer dreaded, but is employed with advantage.

20. *Wounds of the Conjunctiva with Perforation of the Recti Muscles* (partially or entirely), the diagnosis of which can scarcely be difficult, may have as their results slight impediment of the free movements of the eye, and secondary deviation of the organ with double vision.

In recent cases, we may attempt to avert these results by the application of a deep suture; in a later stage, when the muscle has contracted adhesion far back to the sclerotic or the tunica vaginalis, relief may then be expected from separation and suture.

21. *Wounds of the Conjunctiva, with Penetrating Wound of the Sclerotic*, acquire from the latter a high importance, in so far as the ciliary body is implicated or more or less of the vitreous humour escapes (see sec. 4, p. 240).

Recent penetrating wounds of the sclerotic are characterised by diminished tension of the globe, and by the appearance of elements of the uvea (especially pregnant) on the extruded vitreous substance. The cicatrices show fixing of the conjunctiva, pigmentation, and radiating contraction; if very small, they may altogether escape notice. The prognosis in large wounds of the sclerotic may be rendered unfavourable by abundant loss of vitreous humour, or severe intraocular hæmorrhage. In other cases, through consecutive inflammation, destruction not only of the injured but of the sound eye is threatened. There are also cases, especially of deeply penetrating wounds of the sclerotic, in which, after cicatrisation has apparently taken place favourably, retraction (more or less evident, frequently funnel-shaped) of the sclerotic takes place, the field of vision becomes limited, and total blindness at last sets in.

Hence no definite opinion can be formed as to the result of a penetrating wound of the sclerotic extending into or near the retina, till several months have passed without any untoward result being observed, especially retraction of the sclerotic. The plan of suture of long wounds of the sclerotic, followed by Windsor, Bowman, Lawson and Poley, may be regarded as an improvement in the treatment, if it can be employed without further loss of vitreous humour. Without it, long continued rest and the careful application of a protective bandage are necessary.

22. *Wounds of the Cornea* and their immediate results are sometimes very slight, sometimes severe, and are only to be recognised by special methods of examination.

When the image of a window (not too near) on the cornea is viewed from different points, the position of the cornea relatively to the window and the observer being changed, the slightest depression or elevation of the surface of the cornea may be readily perceived. Little vesicles of mucus, like soap-bubbles, which are produced from the oily secretion of the Meibomian follicles, and from the lacrymal fluid, may be readily distinguished from persistent elevations by their mobility and instability.

If the light of a candle be allowed to fall in a dark room through a convex lens of one or two inches' focal distance, held about a foot from the candle, in such a position that the axis of the lens coincides with the straight line connecting the cornea and the flame, there will be seen a light disk on the surface of the eye, the intensity of the illumination of which increases as the glass is removed further from the cornea; and any opaque spot on the cornea, which would be overlooked by the naked eye, is rendered visible as the lens is moved either back, or from side to side. Since the introduction of this method by Helmholtz, it has become known that the most minute penetrating wounds of the cornea (as in keratonyxis for dissection of the capsule) do not heal without leaving some opacity, and that opacity follows loss of the corneal substance in cases where hitherto the cornea has been thought to be transparent.

In examining recent wounds of the cornea, it is before all things necessary to determine whether the wall of the globe (the cornea or the adjoining portion of the sclerotic) be penetrated or not.

Perforation is indicated by raising or diminished depth of the anterior chamber, with diminished tension of the eye, the apposition of a portion of iris to the wound, drawing up the pupil towards the wound, pressure forward of the iris or (in wounds at the corneo-scleral position) of the vitreous body. Union between the anterior and posterior walls of the chamber, as well as the presence of small portions of pigment from the iris on the cornea, readily indicates that perforation has occurred at some previous time. They are generally only observable by focal illumination. Blood in the anterior chamber may arise from wound of the iris, or from bursting of the uveal vessels through compression of the bulb at the same time with the infliction of the wound. If the instrument have passed through the anterior capsule beyond the pupil, opacity of the lens may be observed in a few hours; if it have come into contact with the iris, it may leave in this a rent or hole, or a clot of blood.

Later, when inflammatory action has set in, especially with suppuration and more or less surrounding opacity, the questions as to the duration, form, and depth of the wound can no longer be answered; and it may remain uncertain whether the injury has been produced by the penetration of the injuring body into the eye, or by contusion through sudden pressure.

Wounds which directly or after suppuration leave only a superficial perforation or superficial loss of substance (extending not so far as Descemet's membrane), may heal without leaving permanent opacity. If the loss of substance extend deeply, or if the individual be advanced in years, or have lost flesh, opacity may be expected; and it destroys the function of the eye generally more by the diffusion of the

light and illumination of the entire retina, than by arrest of the rays of light which should fall from the object on the retina.

Denudation of the corneal nerves (through superficial loss of substance), generally gives rise to severe and continued pain; while their division even in extensive wounds, or in the extraction of cataract, appears to be less painful.

Excavation or abrasion of the cornea, affecting not only the epithelium but the superficial fibrous layer (Bowman's membrane), I have observed to follow only injuries with such articles as a comb or a finger-nail; but I have no doubt that it may occur as the result of a fight. The severe pain from denudation of the corneal nerves, the disturbance of vision, the pericorneal injection, the spasmodic contraction of the lids, photophobia, and lacrymation, generally subside in a few days under the operation of cold compresses; but I have in these cases noticed the recurrence of the symptoms some weeks after apparent recovery, and indeed they have recurred three or four times for a day at intervals varying from four to eight weeks. Such later attacks may be regarded as neuralgic if the pain present a certain type; but, on careful examination of all parts of the cornea with the speculum, some excoriation is found, and on questioning the patient it is found for the first time that an injury, perhaps scarcely noticed, has taken place. A woman from the neighbourhood of Krems came to me complaining of pain in the eye, which had returned for the fourth time and lasted eight or ten days. On being questioned closely, she remembered that her child had struck her eye with a needle about half-a-year previously.

The disorder may be easily removed permanently by keeping a protective bandage applied day and night, and dropping atropia daily into the eye. This treatment must be continued on an average from eight to fourteen days.

(To be continued.)

SIMON ON PELIKAN'S OBSERVATIONS ON THE DIFFUSION OF ASIATIC CHOLERA IN EUROPE,

Mr. John Simon, in the following letter to the president of the Local Government Board, discusses the observations of Dr. Pelikan, director of the Medical Department of the Russian Government, on Mr. J. Netten Radcliffe's Memorandum on the Recent Discussion of Cholera in Europe.

Two years ago, when continental Europe had recently been suffering afresh under a very extensive diffusion of Asiatic cholera, and when the infection of the disease was still continuing (as indeed I may add it has even till the present time continued) to show its presence on the Continent, I brought under Mr. Stansfield's notice a report which had been addressed to me, May 7, 1872, by Mr. John Netten Radcliffe, one of the Board's medical inspectors, giving all particulars which we had then learnt with regard to this new manifestation of epidemic cholera in Europe, and suggesting that possibly the diffusion had started from a new infection brought to Kiev from Northern Persia, by way, first, of the Transcaucasian land-route from the Caspian, and then by Black Sea steam-navigation to South Russia.

Whether the particular diffusion of cholera which gave occasion to Mr. Radcliffe's report did or did not arise from the source which the report suggested

as possible, at least Mr. Radcliffe's argument as to the readiness with which the Transcaucasian route in its new development might facilitate the access of Asiatic cholera to Europe, seemed to me likely to be of general interest to sanitary administrators throughout Europe; and, on my submitting this to Mr. Stansfield, he was pleased to direct that the report should be brought under Lord Granville's notice with a view to its being communicated by the Foreign Office to other European Governments.

This course having been taken under Lord Granville's direction, a communication of great interest was received in reply from the Russian Government, giving the observations of Dr. Pelikan, the director of the Medical Department of that Government, on the papers which had reached him from this country. Dr. Pelikan's observations, with a memorandum which Mr. Radcliffe has written on them, are now put before you in print, as material to which reference may probably be made in the Conference about to be held at Vienna on the subject of our European defences against cholera.

The papers, Russian and English, have in the main a common basis of opinion as to cholera. They have had no occasion to touch the still disputed question of the process or processes by which cholera maintains and spreads itself in its own native climate of India: and, on the other hand, as regards the means by which it is spread beyond those limits (ordinary and extraordinary) of its endemic prevalence, educated medical opinions vary comparatively little. No competent person pretends that the power of human intercourse to give pandemic extension to cholera is irrespective of most important qualifications in regard of both place and time; but that, subject to these qualifications, human intercourse is the essential agent of such extension is the conclusion which almost all modern opinions now recognise, and in which (as might of course be expected) Russian opinion and our own are apparently in full accord.

The peculiar interest of Dr. Pelikan's observations centres in the evidence which they supply as to the now seemingly persistent presence of Asiatic cholera in Eastern Europe. That this has at least for the last nine years unquestionably been the case, we are able, with the aid of Dr. Pelikan's information, clearly to see; and Dr. Pelikan explains the fact, not as betokening successive re-infections of Europe from Asia, but as being simply the continuance of one infection. He supposes that the Asiatic infection, when once introduced into Europe, or at least into certain parts of Europe, can acclimatise itself here, with latent powers of epidemic increase, for indefinite periods of time; and, in illustration of this view, he, besides adducing the more recent Russian experiences, communicates a very interesting memoir by Dr. Arkhangelski (of which a translation is appended) on the distribution of cholera in Eastern Europe during the decennium which followed 1846. On the showing of Dr. Arkhangelski, the severe epidemic which invaded England in 1853-54 was no result of new infection from Asia, but was mere reverberation, from Eastern Europe, of the infection which had been with us four years before; and similarly, according to Dr. Pelikan, the fact, that for the last three years we have been under constant threat of a new choleraic invasion, means only that Eastern Europe has for this long while retained, and is from time to time rekindling to new acts of devastation, certain unextinguished embers of the great epidemic of 1865.

The facts which thus come under consideration are of striking prognosticative interest. They represent the choleraic infection as becoming for European Russia, and probably tending to become for all Europe, an influence scarcely to be called alien and rare, but at least comparatively naturalised and habitual : gradually assimilating itself in this respect (as we have long known it to be akin in certain other respects) to the familiar European bowel-infection of typhoid fever. And the importance of the facts in this point of view seems to me to attach to them equally, whether they be explained on one supposition of their origin or the other,—whether they arise, as Mr. Radcliffe's former argument would suggest, by means of repeated introductions of new infection from without, or, as Dr. Pelikan maintains, by the long persistence in vigour of each one infection that is introduced. On either supposition we have to remember, with regard to the future, the increasing facilities for infection from India which are inseparable from the developments of traffic. Thus, if it be true (as Mr. Radcliffe suggested) that unnoticed re-introductions of infection from Asia in 1852 and 1869, following close on the then previous infections, gave a fallacious semblance of continuation to epidemics which otherwise would have been evidently at an end, is it not likely that the number of such unnoticed re-introductions, one following so close on the other as to produce continuity of effect, will multiply in proportion as our constantly increasing and constantly accelerating traffic from the East gives multiplied opportunities for their occurrence? And if, on the contrary, it be true (as Dr. Pelikan believes) that the one infective wave of 1846 did without reinforcement cause ten years of cholera in Europe, and that again the one infective wave of 1865 has without reinforcement caused consequences which are not even yet brought to an end, is it not certain that the permanence of cholera in Europe can be maintained by far fewer new infections than the conditions of our present and future traffic with Asia are sure to bring with them?

If, then, Eastern Europe must in effect for the present be regarded as ordinarily containing foci of epidemic cholera, from which the infection, when favoured by season, can almost without warning spread itself, not alone in Eastern Europe, but along scores of lines of communication, by land and water, in the whole European area, and if we must accept, as but too probable, that this state of things may gradually tend, by force of circumstances to realise itself on a far larger scale than the present, the prospect evidently is one which needs to be faced and fully considered. Civilised human life has already a hard struggle against the chief contagia which hitherto are current in Western Europe—against small-pox and typhus and scarlatina and typhoid and diphtheria and measles and hooping-cough; and the possibility of a new and most deadly contagium tending by degrees to become similarly current here can hardly be contemplated without a first feeling of dismay. Also, it must, I believe, be recognised that from the one direction to which our forefathers would, in circumstances like the present, have fondly looked for safety, little reasonable hope can come to us. The passage which Mr. Radcliffe quotes on the subject of quarantine from my eighth Annual Report to the Privy Council, represents convictions which I still strongly entertain, and which for many years past have been at the root of all advice which I have had the honour

of submitting to Her Majesty's Government, in regard of the foreign sanitary relations of this country. I believe that it fairly applies to the whole of the case which I am bringing before you. Against re-importations of the Asiatic infection into Eastern Europe, I cannot imagine that Russia and Turkey will, by quarantine, make in the future more successful resistance than they have made in the past : against cholera already localised in Eastern Europe, it seems to me singularly improbable that any commercially active part of the continental area should effectively protect itself by quarantine; and against cholera current on the continent of Europe, England (as I have endeavoured to show in the argument which Mr. Radcliffe quotes) can assuredly not so protect itself.

The nature of the defences which we in England have at our disposal against cholera when brought into our ports, may be gathered from two papers which are appended to my recent annual report : one, the order which the Local Government Board has in force with respect to ships suspected of choleraic infection; the other a memorandum of advice to the public on the mode of propagation of cholera. Under the order each port sanitary authority has certain facilities for inspecting ships of suspicious arrival, and can deal, as regards things and persons, with cases of manifest or probable choleraic infection, by requiring the disinfection or destruction of infected or probably infected things, and, if it has hospital accommodation, by requiring that no person with manifest or probable signs of cholera shall leave the ship except for treatment in hospital : these facilities and powers being in substance such, and only such, as the port authority also possesses in relation to small-pox and typhus, and other of our accustomed infections : but of quarantine strictly so called—that is, of detaining for periods of sanitary observation persons who do not already appear sick, the order has nothing to say. It tacitly confesses that England has abandoned as futile, and as tending to inspire false confidence, such quarantine or pretence of quarantine as is alone possible to a great commercial community; and that when cholera is current on the continent of Europe, we must accept, as practically not to be avoided, innumerable chances, which indeed make certainties, that the same contagium will freely enter our own country. It is on that basis that the true defences of England against cholera have to be planned; defences, not peculiar to the coast-line of England, but, in principle, equally to be aimed at in each sanitary district throughout the country; defences, which (as explained in the memorandum above referred to) consist essentially in those common hygienic precautions which local sanitary authorities are responsible for providing or enforcing, and, above all, in extreme vigilance in regard of the local supplies of water and the local prevention of filth. Thus, in truth, the increasing influence of cholera on the continent of Europe is chiefly to be regarded in this country as an additional appeal to our fifteen hundred local authorities to move swiftly and effectively in duties which already, on other grounds, are urgently incumbent on them. 'The local conditions which would enable cholera, if imported, to spread its infection in this country, are conditions which day by day, in the absence of cholera, create and spread other diseases : diseases which, as being never absent from the country, are, in the long run, far more destructive than cholera : and the sanitary improvements

which would justify a sense of security against any apprehended importation of cholera would, to their extent, though cholera should never reappear in England, give amply remunerative results in the prevention of those other diseases.' Above all, in the sense of preventive medicine, I would refer to the close etiological affinity, at least in Europe, between the diffusion of cholera and the diffusion of typhoid fever; I would advert to the hope, which surely recent legislation justifies, that our local authorities will proceed with swift and sure steps to extinguish the latter filth-disease within their respective areas of jurisdiction; and I would venture to express a belief, which is among the strongest convictions of this department, that, in proportion as common sanitary improvement takes from typhoid fever its present deplorable and disgraceful power of spreading among our population, in such proportion will England have better security against cholera than any imaginable system of quarantine could have given her, and will be able to receive with comparative impunity whatever importations of cholera-contagium may thenceforth accrue to her from abroad.

If the opinions here expressed be well founded, they can scarcely be deemed applicable to England alone. If it be (as I think it is) next to impossible that the access of the cholera-contagium to Europe, or its dissemination over the European area, should ever be prevented by quarantine, surely by common consent the object which must be deemed of first importance is to have removed, wherever the contagium may be expected to reach, those local conditions on which it depends for its powers of propagation. I observe with particular pleasure and hopefulness the emphasis with which Dr. Pelikan applies this principle—if not exactly in our English sense, yet at least in a sense which must eventually be of good result, to the present continuance of cholera in Eastern Europe. From our English point of view it seems little less than certain that, along the whole succession of lands which receive (whether to transmit or to retain) the streams of westward traffic from India, common hygienic vigilance in the respects to which I have above adverted might be of immense human interest as preventing the diffusion of cholera: of interest first to each district for itself, but also through it of interest to all. Of the sanitary circumstances of other countries than our own I can speak only as a reader or casual visitant; but, even with this slender information, I think I can plainly see that the familiar local causes of typhoid fever lie broadcast along and about the lines by which commerce travels from east to west, and represent what English medicine would consider unbounded facilities for the spread of choleraic infection. To influences which may thus be exerted on Europe at various times by the sanitary unculture of Persia and Irak-Arabi, of the lands which border the Red Sea, or of Mediterranean and Euxine Turkey, it is unnecessary in connection with the present papers to refer; but with reference to the vast analogous interest which Continental Europe has in its own hygienic progress, I may observe that the facts which Dr. Pelikan brings to our knowledge seem to me singularly suggestive. Whether it have been by re-infection or by continuance of infection that Eastern Europe has been able to provide during so many years an habitual lodgment and breeding-place for cholera, equally I would concur with our eminent Russian fellow-worker in urging that thorough investigation should be made of the

local circumstances under which that sad susceptibility to the infection exists; and, from the standpoint of our English experience, I may venture to express a somewhat sanguine hope that in such investigation the essential determining causes of the evil will prove to have consisted in Eastern Europe, as certainly the like have seemed to consist in England, of only such defects of local sanitary administration as admit easy and permanent removal.

LECTURE.

LECTURE UPON GENERAL THERAPEUTICS OF THE NERVOUS SYSTEM. By E. C. SEGUIN, M.D.

(Continued from page 414.)

CLASS B.

Means which affect the Substance of the Nervous Centres (continued).

2. Depressants and anæsthetics are thus divided.

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|---------------------------|---|
| (A)—Cerebral depressants. | { Cold, bromides of potassium and calcium, opium, hydrate of chloral, food, &c., chloroform, ether, &c. |
| (B)—Spinal depressants. | { Conium, bromide of potassium, cold, and food. |

A. CEREBRAL DEPRESSANTS.—Cold is to be employed in the same manner as when we wish to produce an anæmic condition of the brain. The inclination to sleep experienced by persons exposed to severe cold, such as encountered in the arctic regions, is an illustration of the effect which cold can produce upon the nervous system.

The India-rubber bag sometimes employed in making applications of ice diminishes the intensity of cold applied, and is inferior to the bladder ordinarily employed (*vide supra*).

Bromide of potassium has usually been spoken of as acting through the blood-vessels, and causing their contraction, and consequently anæmia of the parts they supply. Dr. W. A. Hammond and many others speak of the remedy as acting in this manner. There has been some doubt expressed as to whether bromide of potassium is a true hypnotic. At present, perhaps, this is to be regarded as an unsettled question. For my own part, judging from my own experience and the testimony of others regarding bromide of potassium, I have been led to conclude that, when given in sufficient doses, it acts very powerfully as a cerebral depressant. In health, I admit that no narcotic effects are obtained from a few doses of the medicine; but, in cases of cerebral irritation, and insomnia from a variety of causes, its action is sure and immediate. In delirium tremens, for example, in such cases as are not complicated by degenerative liver and kidney disease, in the so-called sthenic cases, bromide of potassium, given in doses of \mathfrak{zj} or more every hour, until $\mathfrak{z}\text{ij}$ or $\mathfrak{z}\text{iv}$ have been taken, will, conjointly with semi-darkness and quiet, cut the attack short by producing sleep. In 1866-67, while house-physician to the New York Hospital, I had the opportunity of thus treating a series of these cases with very satisfactory result. I say this, while perfectly aware that several medicines seem to shorten the duration of delirium tremens, and that it is, under certain conditions, a self-limited disease.

In certain forms of insomnia seen in connection

with fevers, the bromide of potassium may fail to produce sleep, because (?) of the continued influence of a blood-poison in keeping up the morbid state.

In the insomnia and delirium of pneumonia I have also seen speedy relief procured by \mathfrak{v} ij or \mathfrak{z} j doses of bromide of potassium. In the simpler (?) conditions of sleeplessness caused by anxiety, over-exercise of the brain-functions, emotional disturbance, this remedy usually acts well. Perhaps the most convincing proof of the action of bromide of potassium upon the cerebrum is to be had from observing the effects of the long-continued use of large doses of the remedy. A condition called 'bromism' is set up, characterised by stupor, deficient memory, aphasic-form speech, tottering gait, loss of facial expression, salivation, mucous irritation, papular skin-disease, &c. Although we see this result more often in the course of the treatment of epilepsy, yet it may be developed in persons not having this disease. The mental state of bromised persons is not unlike that of patients with dementia.

Hydrate of chloral is, in my opinion, the best medicine that can be employed for producing sleep. It does not intoxicate or disturb the digestive organs, as opium does. When chloral succeeds—and it almost invariably does succeed—it produces a calm sleep, not followed by any special disturbance of the system. I would have you bear in mind that this remedy is a much more direct hypnotic than opium, and yet that it does not possess the power of preventing the perception of pain. Hence a rule to follow is to give chloral in cases of insomnia not connected with pain. The physicians to insane asylums in Europe and in this country have found in chloral an invaluable agent for giving rest to patients suffering under mania in any of its forms. They have also testified to the very great safety attending the use of the medicine, many patients getting large doses of it nightly for months and years. Chloral may also be used in the cases where (*vide supra*) bromide of potassium is indicated, and the two may be given together. If you are to choose between these two drugs, use bromide of potassium, if in addition to the cerebral irritation there exists some physical excitement (spinal irritation); chloral in cases of pure cerebral disturbance. The theoretical view, that bromide of potassium acts by causing anæmia of the brain, leads to the withholding it in cases of cerebral anæmia and malnutrition. This I believe to be an error, since in my experience the occasional giving of bromide of potassium (and chloral hydrate) in such cases has in no way hindered the good effects of restorative medicines.

The dose of hydrate of chloral may be, for adults, \mathfrak{v} gr. or \mathfrak{z} j. In females, especially, it is well to try a small dose on your first trial. A scruple dose I believe to be a perfectly safe one for a man. The doses of \mathfrak{v} ij and \mathfrak{z} j should be used in cases of acute mania, or severe delirium.

The conjoint use of bromide of potassium and chloral is very satisfactory. A drachm of bromide of potassium may be administered in the afternoon, followed at bedtime by grs. xx. or xl. of chloral.

Concerning the use of opium and its constituents in diseases of the nervous system I believe that I need say very little. I would have you always bear in mind the exceedingly unpleasant way in which this remedy affects very many females, producing insomnia and, later, vomiting and constipation. For these susceptible individuals (a few males must be included) some of the liquid compound preparations

of opium, McMunn's elixir, the liquor opii compositus, may be substituted for morphia or simple opium. In a very large number of cases of nervous disease we seek to relieve pain by the use of morphia. In such cases it is best administered hypodermically, in the form of strong solution of the sulphate, or acetate, or muriate. I must admit that my own patients seldom receive any but the sulphate of morphia injections, in the shape of Magendie's solution (16 gr. to \mathfrak{z} j), \mathfrak{m} x of which are equivalent to one-third of a grain of sulphate of morphia. I am, however, in the habit of adding a little atropia, $\frac{1}{100}$ or $\frac{1}{50}$ gr. to each hypodermic injection, for the purpose of remedying the nauseating and constipating effects of the morphia. My solution of atropia is composed of atropia gr. j, distilled water \mathfrak{z} v: \mathfrak{m} j, containing $\frac{1}{300}$ of a grain of atropia. I have employed this combination since 1867 with great satisfaction.

Food is a depressant, because it remedies the morbid irritability produced in the brain in cases of exhaustion, whether from hæmorrhage or over-work. Sometimes the effect of food is very marked indeed. Many of you have doubtless experienced a sensation of exhaustion, accompanied by headache, perhaps severe, which has been entirely relieved by taking a good meal. The headache perhaps has been made to disappear even before the meal was completed, and you have felt immediately refreshed, and that without wine or other alcoholic stimulant. In many cases of delirium and mania, the effects of the persistent giving of nutritious food are evidenced by rapid improvement and cure.

B. SPINAL DEPRESSANTS.—Conium is the type medicine of this class, and seems to be the direct antagonistic of strychnia. It acts by paralysing the spinal motor centres, from the nucleus of the third nerve down. This remedy can be used with benefit in spasmodic affections. In small doses it produces a paretic condition of the spinal axis, indicated by partial ptosis, strabismus, or double vision, and weakness of the knees; and the arms may become slightly paretic. The symptoms appear within an hour after the medicine has been taken. By the administration of larger doses almost complete akinesis is obtained, which may last for half an hour or an hour, but is not dangerous. The remedy should be given only once a day, and in many cases to the extent of partially paralysing the patient. A reliable preparation is the English *succus conii*, which may be administered in doses of from \mathfrak{z} ij to \mathfrak{z} vj once a day. An equally good form of conium is Squibb's fluid extract. I usually prescribe this, and give it in doses of \mathfrak{m} xl or \mathfrak{z} j. Dr. John Harley, of London, has done much to give us a clear notion of the action of this remedy, and he has found it useful in chorea, epilepsy and other spasmodic diseases; he points out the necessity of obtaining the physiological effects of this and other drugs when we wish really to do good in affections of the nervous system. In epilepsy I have employed the fluid extract of conium in combination with bromide of potassium with good results.

Bromide of potassium also acts directly upon the spinal cord as a depressant. It lowers the activity of the motor tract (though in a lesser degree than conium) and diminishes reflex excitability. Its use is consequently indicated in all affections in which reflex action is abnormally great, and in many such we obtain immediate and permanent good results from its administration. In various forms of convulsions, the eclamptic attacks of children, of pregnant

and parturient women, bromide of potassium does good. Morbid excitement of the lumbar part of the spinal cord, as evidenced by nymphomania and satyriasis, is often relieved by this drug. Some forms of vomiting (in pregnancy, after inhalation of ether, etc.), spasmodic states of various sphincters are also to be cured by bromide of potassium. It is in the treatment of the great neurosis epilepsy that this medicine is most employed, and it is concerning its usefulness in this affection that great discussions have occurred. The use of bromide of potassium in epilepsy was begun by several physicians about the same time, but Drs. Brown-Séquard and Laycock were the first to call attention to it. The generally received opinion is that bromide of potassium is the medicine which possesses more power than any other over epilepsy; that in the majority of cases the frequency and severity of the seizures are very much diminished while the medicine is being taken (the symptoms soon reappearing if it be discontinued); and that a case here and there may be cured by its use. In hospitals with large numbers of epileptic patients, the effects of giving and withholding bromide of potassium are very strikingly in favour of the utility of the drug. For my part, I wholly accept this as a correct estimate.

There are a few general rules to be observed in the treatment of epilepsy by bromide of potassium. In the first place, enough bromide of potassium (and other bromides if you please) should be given to reduce the reflex function and keep it below the normal standard. A test of the sufficient action of the medicine lies in the reaction of the palate and fauces to irritation; a diminution or abolition of the well-known reflex movements of these parts indicating diminution of the reflex excitability. Another general rule is to give more of the medicine at night than in the daytime; a direction of great value, for which we are indebted to Dr. Brown-Séquard. We usually give three day-doses, and a dose in the evening twice or thrice the size of the day-dose. A third and most important rule is to administer the bromide of potassium in a perfectly continuous way for months and years. Dr. Brown-Séquard has known patients, who remained without seizures for two years while taking his prescription for mixed bromides, to have a return of convulsive seizures in a short time after ceasing the medication. I have seen similar though less striking results.

There are a few epileptics who cannot tolerate the bromides, who become easily 'bromised,' and whose attacks are made worse by these drugs. These paradoxical patients are very rare, I believe. While recognising the great value of Brown-Séquard's compound bromide solution (bromides of potassium and ammonium and iodide of potassium), I more commonly employ a simple solution of bromide of potassium, giving gr. v three times a day, and gr. xv or ʒj at bedtime, at first in adults. Children require relatively very large doses of the bromides; and contrary to what is sometimes taught, I see in anæmia no contra-indication to the use of the remedy, nor do I believe that any law can be laid down for the giving or not giving of it, from observations upon the retinal circulation. Such a view is based only upon belief in the more than doubtful physiological theory, that cerebral hyperæmia and anæmia are usually prime factors in the pathological state called epileptic.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

HAKE ON THE USE OF ETHER AND CHLOROFORM IN PROFESSOR SCHIFF'S LABORATORY.—In the *Practitioner* for April, Dr. T. G. Hake gives the results he has witnessed in the physiological laboratory at Florence, of giving ether and chloroform to animals. Ether is usually preferred, because Professor Schiff finds that 'etherisation pushed to the very last stage of insensibility is never dangerous to life so long as one maintains the act of respiration, and even if one press the inhalation of ether yet further, so that the respiratory movements cease, or in other words, the appearance of death is complete, life is never menaced, if only, at the moment of the paralysis of the thoracic walls, inhalation be interrupted and a species of artificial respiration be immediately commenced by means of periodic compression of the thoracic parietes themselves.

'Chloroform has been preferred to ether because it acts more quickly, and its use is more agreeable to the patient. But chloroform has a paralysing action much greater than that of ether, and, in like manner, at least in man and mammalia, generally has a special influence on the nerves of the heart and vessels. If chloroform be pushed so as to produce a considerable weakening of the respiratory movements, the interruption of the inhalation may, in a majority of cases, lead to the re-establishment of respiration and afterwards of sensation; but sometimes, a short time after the commencement of inhalation, the force of the circulation is so enfeebled that it no longer renews fast enough the blood to the lungs.' . . . 'Death is sometimes sudden, but it may be preceded by signs of sinking of the pressure of blood in the vessels.' . . . 'If the action of chloroform be prolonged until respiration ceases, we are not even sure of being able to revive the individual after having re-established the respiratory movements, for these often again cease owing to the disturbance of the circulation, whilst the same movements, if restored after the inhalation of ether, become *always* more frequent in the individual when left to himself.'

He believes that 'the lethal effect of chloroform depends in part on individual predisposition, which the physician is unable to recognise'; that, whereas ether gives rise to paralysis of the respiration, vessels, heart, and motor nerves, in the order named, chloroform is irregular in its action, and sometimes produces paralysis of the vessels first, then of respiration, and finally of the heart. 'That the heart is the last of these three factors which dies,' he demonstrates thus. 'When by the action of chloroform the pressure in the vessels has gone down nearly to zero, and there is no visible pulsation, compression of the aorta between the crura of the diaphragm, or the mere compression of the abdomen, restores to the pulse its strength and frequency, and causes the pressure to rise to considerable height.' 'This fact proves that the heart, notwithstanding its apparent paralysis, is still able to maintain the almost normal pressure of the blood, and to contract with more strength than before, when the pressure is acting upon its walls, and opposing itself to their contraction.'

Professor Schiff's experiments on animals with ether, in more than three thousand cases have, with few exceptions, been without the occurrence of a death, but chloroform was fatal to a considerable number when he wished to push anæsthesia to its ultimate stage. 'He considers that chloroform

should be banished from practice as an anæsthetic agent, except in cases in which extraordinary resistance to the effect of ether shows itself, in which instances it might be allowed to mix a little chloroform with it, in order to produce the commencement of anæsthesia.' He has made some highly important observations upon the effect of the irritation of many sensitive nerves. 'The animal is etherised or chloroformed until respirations have ceased, artificial respiration is commenced, and when the animal begins to breathe automatically but weakly, there is a moment in which any strong mechanical irritation of the nerves above indicated produces a new and more persistent asphyxia; the diaphragm is relaxed, and it seldom happens that the animal is recalled to life.' This 'is now explained by Schiff's more recent experiments, in which mechanical irritation of a posterior spinal root—previously laid bare—produced paralysis of the circulation.' 'These experiments afford a warning of much importance to surgeons, not to continue an operation immediately on a patient's recovery from the excessive action of anæsthetics, but to wait until respiration has been energetically restored.' 'Professor Schiff killed some dogs in the first period of return from asphyxia produced by ether only, by raising with a tenaculum one or two posterior roots of the dorsal nerves; while in other dogs, prepared in the same way, in which the same operation preceded the division of these nerves in a somewhat more advanced period of the return of respiration, that function continued in its regular progress up to the time of consciousness being restored.'

[The reporter believes that the frequency of death from chloroform in Schiff's experiments on animals may be explained by his not having the means of limiting the proportion of chloroform in the air with sufficient accuracy. His own experience in giving it to the human subject has convinced him that it does not always prevent the shock of an operation (see his remarks in *Brit. Med. Journ.*, February 14, 1874, upon the causes which augment the effects of chloroform). Schiff's observations are specially valuable as showing the danger of continuing an operation if a patient is so intensely narcotised that the respiration is performed in a very defective manner. The reporter would be guided by the condition of the pulse in a doubtful case of the kind.—*Rep.*]

JOSEPH T. CLOVER.

PATHOLOGY.

MÉHU ON THE LIQUIDS EFFUSED INTO THE PLEURA.—A work on this subject recently published by Dr. Méhu (*Archives Générales de Médecine*) gives the *résumé* of a long series of experiments undertaken by the author, with the intention of throwing light on the differences between the physical and chemical qualities observed in the liquids of the thoracic cavity. From these experiments, M. Méhu has deduced the following conclusions. In pleuritic effusions the amount of mineral salts is nearly invariable, and always independent of the quantity of albuminous matters contained in them. This rule applies to all the serous liquids of the animal economy, as hydrocele, ascites, hydrarthrosis, hygroma, ovarian cysts, &c. Each kilogramme of liquid yields from 7·5 grammes to 9 grammes of

anhydrous mineral salts. Fibrine is more specially present in acute pleurisy in an average quantity of 0·4232 grammes; and it is also present in cases where the thoracic effusion is the result of some obstruction in the circulation of the blood in the heart or the great vessels; but it is then found only in small proportion, being on an average 0·149 grammes. Fibrine was not found in purulent liquids, nor in effusions brought on by the presence of heterologous products such as tubercle, cancer, etc. Whenever the weight of the dry residuum did not attain 50 grammes to the kilogramme of liquid (average 30·1 grammes), there was some impediment to the circulation of the blood in the heart or great vessels, and the effusion was owing to that obstacle (cardiac affections or cirrhosis). When the weight of the dry residuum left by the evaporation of 1 kilogramme of liquid exceeds 50 grammes (the average being 65 grammes, the lowest quantity obtained 58 grammes), and this liquid coagulates after operation into a mass of more or less consistence, it may be taken as certain that acute pleurisy is present. According as the amount of fibrine is large, the patient rapidly recovers; a single puncture generally effecting a cure. If in some cases two punctures have been made, it is not always because the liquid has reproduced itself, but because the operator, fearing some annoyance to the patient, has chosen to extract only a portion of the liquid in the first instance. When the condition of the patient calls for several successive punctures, the proportion of fibrine increases in proportion as the disease is near cure. On the contrary, the fibrine remains in very small quantity, or is not present at all, if the disease show a tendency to grow worse. Practically, at the bed-side, every pleural liquid for which the gravimeter indicates a density above 1·018 at a temperature of 59° Fahr., coagulates and which sets by degrees into a more or less consistent mass, betokens a clearly defined acute pleurisy, which will be cured the more rapidly as the coagulum becomes more firm. Every pleural liquid of which the gravimeter indicates a density below 1·015 at the temperature of 59° Fahr., indicates that the effusion depends on the presence of some impediment to the circulation of the blood in the heart or great vessels. Hydrothorax is present. Here the prognosis depends on the primitive lesion, generally more serious than the effusion itself. Every pleural liquid of which the gravimeter indicates a density above 1·018 at a temperature of 59° Fahr., and which does not yield any fibrine, indicates a lesion of the pleura, due to the presence of heterologous product, such as tubercle or cancer, generally a very serious lesion, so that these liquids are generally an unpleasant prognosis.

In all cases M. Méhu recommends that a temperature of fifteen degrees (59° Fahr.) should be taken as a term of comparison, without having recourse to calculations to correct it.

ON ANEURISMS DEVELOPED UPON BRANCHES OF THE PULMONARY ARTERY, BORDERING UPON CAVERNS.—In the *Progrès Médical*, there is an interesting paper on this subject. The branches of the pulmonary artery, which ramify in the walls of caverns in phthisical subjects are most frequently obliterated. This is a point upon which all authors since the time of Laennec insist, and upon which the researches of Nat. Guillot have more particularly thrown light. In some cases, however, these vessels remain permeable, but undergo in a localised point a histological modification, as a consequence of which

they become dilated, and there can then be found a small aneurism projecting into the cavern.

These cases are relatively rare, but many facts recently presented to the Anatomical Society lead us to think that by more rigorous research they would more frequently be discovered. In all the cases where it has been studied, the process appears to have been the same; it can be summed up thus: denudation of the vessel over a limited point, endarteritis in the embryonic transformation of the wall at this level; then simple dilatation or aneurism; lastly, most frequently rupture of this aneurism. The vessels injured by this alteration are not the capillaries; their calibre has varied from a half to three millimètres. They were generally parallel to the cavern; in M. Lepine's case the artery was perpendicular. The hæmoptysis following the rupture has generally been very abundant, and has almost always been followed by rapid death; in some cases, however, the hæmorrhage has ceased and the patients have not immediately succumbed, and it has been possible to find at a later period the orifice obliterated by clots of blood of different ages. Occasionally there appears to have been at several times successive ruptures and obliterations. According to Powell these aneurisms are developed especially in cases of torpid (quiescent) phthisis, where they exist on one side only of old caverns; and, on the contrary, the hæmorrhage from simple erosion of the vessel will be rather the result of the active process of rapid phthisis.

Again, in the two cases, this change in the vessel would not be in any wise possible unless it were by one single point in its surface adherent to the diseased pulmonary tissue, the chances of obliteration being, on the contrary, much greater if the entire vessel dip into the morbid product.

An examination of the observations shows indeed, that in the majority of cases the pulmonary tissue over the wall of the vessel opposite the aneurism is almost healthy; but as to the first point, if there are many facts in favour of the phthisis being evidently chronic, there are others absolutely contradictory.

The rupture of these aneurisms is not forced, and although they have seldom been detected except after profuse hæmoptysis, it has been possible to discover those which had not burst. But if we expect that in the cases of extensive pulmonary alterations, the field of distribution of the pulmonary artery is more or less contracted, and that, as a consequence, the vascular tension ought to be there increased, if we add to that the feebleness of the wall of the vessels, we cannot be surprised that this rupture should be the most ordinary result. According to Jaccoud, it will also be more frequent or more early, if there does not generally exist in these cases a dilatation of the right auriculo-ventricular orifice, the result of which ought to be to diminish the volume of the sanguineous shower.

As for the occasional causes of the rupture they are unknown; however, it has appeared in some cases that the hæmoptysis has been preceded by a violent fit of coughing, but we ought always to ask ourselves if the fit of coughing was not itself the first symptom of the hæmorrhage.

It is very evident, again, that these cases cannot be foreseen, and up to this time they have never been diagnosed before the rupture; but if we observe at an advanced period of phthisis a profuse hæmoptysis to come on suddenly, we should consider it

due to the rupture of an aneurism, and we ought not on that account to neglect to treat the patient; it will, quite on the contrary, be more formally indicated, to seek to arrest at once the hæmorrhage, since we know that in certain cases the aneurism has been able to be obliterated by a clot of blood.

J. B. BRADBURY, M.D. (Cambridge).

SURGERY.

HORAK ON A CASE OF PROLAPSE OF THE OMENTUM THROUGH A PUNCTURED WOUND OF THE ABDOMEN.—Dr. Anton Horak of Brunn reports (*Medicinisch-Chirurgisches Centralblatt*, no. 15, 1874) a case of a man aged forty who, during an attack of delirium tremens, had stabbed himself in the epigastric region with a large carving-knife. Through this wound, which was three centimètres in length, and extended transversely from the linea alba to the left hypochondrium, there protruded a red and sanguineous tumour resembling a gland, the base of which was compressed by the cut edges of the abdominal wall. Manipulation of this protrusion caused much pain and hæmorrhage. The parts around the wound were hard and swollen, and gave a dull sound on percussion. The gastric region was much distended, and pressure here caused nausea. Dr. Horak at first thought that the tumour consisted of a portion of pancreas, because it very much resembled externally the acinous structure of this gland; on further consideration, however, and after bearing in mind the deep situation of the pancreas and its relation to the stomach, he came to the conclusion that the protruded mass was composed of degenerated omentum. A ligature was placed round the base of the mass, just above the seat of constriction, at the wound in the abdominal wall. In order to guard against hæmorrhage, very strict local and general antiphlogistic treatment was carried out. The patient was carefully watched, and his mental disturbance treated by large doses of opium. The ligature was tightened on the following day, and on the third day the portion of tumour external to the ligature was removed. A raw surface was left, which granulated and speedily closed by cicatrization, the remaining cord-like base of the protrusion becoming more and more retracted into the abdominal cavity. On the seventeenth day Dr. Horak discontinued his professional visits, and the patient ultimately made a complete recovery. The portion of the fleshy mass which had been removed after the application of the ligature was examined microscopically, and found to be a piece of compressed omentum.

MEYER ON ARTICULAR NEUROSIS.—Dr. Moritz Meyer, in a paper read before the Medical Society of Berlin, and published in the *Berliner Klinische Wochenschrift* (no. 16, 1874) attributes to Stromeyer and Esmarch the merit of having of late directed particular attention to the obscure and pseudo-inflammatory affections of joints, which were first described nearly half-a-century ago by Brodie as hysterical articular lesions. These affections, Dr. Meyer states, have their seats in the nerve-trunks which provide the articular capsule and the soft coverings of joints with sensory twigs, and are revealed by pains felt during movements of the affected joints, and are not unfrequently the sole cause of articular immobility lasting for years, and in some

subjects to the end of life. This form of neuralgia, for as such the affection may be rightly regarded, sometimes occurs without any appreciable cause; at other times it is undoubtedly a result of some psychical affection or intense emotion. It often follows some mechanical lesion, as contusion or distortion of a joint, and is occasionally dependent on reflex action in cases of gastric disturbance and irritation of the urinary and generative organs. The diagnosis of articular neurosis, and particularly its distinction from inflammatory affections of joints, is often very difficult; but this is an important matter, since rest and antiphlogistic treatment, which are so serviceable in the treatment of the latter affections, are contra-indicated in cases of articular neurosis, which require movement of the affected joint, good diet, and tonics. The guiding-points in the diagnosis of the neurotic affection are the following. Nocturnal pains are almost invariably absent in this affection; slight digital contact with the affected joint is generally very painful, whilst firm pressure and concussion of the cellular extremities of the bones do not cause much distress; temporary œdema and puffiness of the integuments are frequently to be met with; the temperature of the affected joint sometimes undergoes periodical variations; notwithstanding absolute rest of the joint, and corresponding limb, the muscles undergo very little wasting; the very slight objective phenomena bear but little relation to the severe pain complained of by the patient; if the attention of the patient be diverted for a time from the affected part, the surgeon may often move the parts about the joints, and the limb, without causing pain. Articular neurosis often ceases suddenly on the appearance of other hysterical affections, through violent mental impressions, after sudden and violent movements caused through accident, and, in cases of the reflex variety, after cure of the distant and primary affection. The best treatment, according to Stromeyer, consists in the administration of tonics, cold and sea-water bathing, shampooing, and profuse movement of the affected joint. Hypodermic injections of morphia, and the administration of chloroform are recommended by Esmarch as excellent means of causing relaxation of stiff joints. Dr. Meyer recommends in addition to these plans of treatment a powerful induction-current, applied directly to the painful joint. This, he states, acts readily as an anæsthetic and curative agent. Four cases are reported, in which severe articular neurosis was thus successfully treated. W. JOHNSON SMITH.

CARPENTER ON MALIGNANT PUSTULE.—Dr. Alfred Carpenter has printed (with additions) a paper read by him before the Medical Society of London in November last. He has met with five cases of charbon, and says that Dr. Farr informs him that, although reckoned rare in England, twenty-one deaths from it were registered during the five years ending December, 1871—viz., in 1867, six; in 1868, three; in 1869, four; in 1870, three; in 1871, five. In all Dr. Carpenter's cases the pustule was on one or other lip.

The first case, in a male inmate of St. Thomas's Hospital, aged thirty-six, was fatal in six days. The second patient, a grocer, aged forty-four, died about the eleventh day. A girl, aged twenty-two, died on the eighth day. The fourth patient, a young lady from the West Indies, died on the sixth day; but the fifth case, a lady, aged thirty-six, born in India, recovered, after nearly seven

months' illness, attended with pyæmic symptoms, jaundice, and phlebitis of the abdominal veins, with articular pains and nodes on the tibiae. Dr. Carpenter attributes her recovery to the free use of liquor ammoniæ—five minims of the strong solution being given in water every hour at first, and continued afterwards. Dilute nitric acid aggravated her symptoms. In the discharges Dr. Carpenter found 'a few minute rod-like bodies, which rapidly developed into a fungus growth,' which he did not find figured in any work on microscopic fungi to which he had access. 'It appeared to be one of the hyphomycetous fungi, allied to botrytis and penicillium, though it may possibly belong to ascomycetes, the terminal fructification in some cases appearing in asci.' No communication with diseased animals was traced in either of the cases.

The same pamphlet contains an account of a case of recovery from glanders, or acute farcy, in a grazier. This favourable termination is attributed to the use of ammonia, although mercury was also exhibited.

W. BATHURST WOODMAN, M.D.

LE FORT AND OTHERS ON THE PRODUCTION OF ANÆSTHESIA BY COMPRESSION.—At a sitting of the *Société de Chirurgie de Paris*, held June 21, M. Le Fort read a communication on some cases in which he had obtained surgical anæsthesia by the sole employment of compression by the method of Esmarch; he attributed this effect to the energetic compression of the sensory nerves by the constricting band placed round the root of the limb. He considered that there was here a most valuable agent in producing anæsthesia, should the feeble condition of the patient not permit the use of chloroform, or demand the least possible loss of blood. In the discussion, M. Demarquay said that he had already attempted to induce anæsthesia by ischæmia, by applying Esmarch's apparatus in patients afflicted with varices of the lower limbs, but that he had found on removing the bandage that the sensibility continued, though considerably duller. M. Demarquay had in his cases suppressed the constrictor band placed on the root of the limb, and it was to this that M. Le Fort attributed the complete results he obtained; in a word, M. Demarquay kept within the bounds of producing anæmia of the limb, whilst M. Le Fort directly suspended the nervous action by the energetic constriction to which he submitted the nerves, by concentrating this constriction upon a limited portion of their extent. M. Verneuil, from the experiences he had had of Esmarch's method, had determined, 1st, that complete ischæmia, produced by pressure for fifteen minutes, admits the persistence of sensibility; 2nd, that after removing the apparatus it manifests itself some time after the operation, a consequence no doubt of the paralysis of the capillaries produced by the pressure, the free loss of blood necessitating the ligature of a lesser or larger number of arteries; there is therefore an exaggeration in saying that, owing to Esmarch's apparatus, operations can be performed without the loss of a single drop of blood. If the wadding dressing be applied after similar operations, the oozing of blood which occurs soaks it and renders it defective, so that the intention of the method of dressing by occlusion would be, according to M. Verneuil, analogous to that of Esmarch.

EDWARD BELLAMY.

MATERIA MEDICA AND THERAPEUTICS.

PAUL AND OTHERS ON THE TREATMENT OF TÆNIA.—The *Bulletin Général de Thérapeutique* of June 30 contains the following report of an interesting discussion which took place at a meeting of the Société de Thérapeutique on the 10th of the same month. 'M. Constantin Paul referred the society to an observation published in the *Revue Médicale de l'Est* (for June 1, 1874, p. 415), by M. Spire, of Blamont. It had reference to an infant of thirteen months having a tænia, which was expelled after the administration of one gramme of the ethereal extract of male fern and three grammes of the fern powder, to be taken in six doses, at intervals of ten minutes; 10 grammes of the pomegranate root bark having been previously administered without result. M. Paul called attention to the two following points; the very considerable dose of the ethereal extract employed in this case, and the frequency of tænia amongst infants to whom raw meat is given. In the instance mentioned, the infant had partaken of cooked pork ever since it was five weeks old. M. Limousin did not consider the dose of 1 gramme of the ethereal extract to be unduly large; he had successfully administered to an infant four years old 4 grammes of that extract, which, in his opinion, is not toxic. M. Martineau, however, had seen rather serious accidents produced in a young man, twenty-one years of age, to whom he had administered 4 grammes of the extract. M. Créquy had for some time recommended the employment of capsules, each containing 50 centigrammes of the ethereal extract, and had never observed any ill effects; this treatment, applied by him a dozen times, had only once been unsuccessful. The capsules should be thin, otherwise they can only be dissolved at one point more or less removed from the intestine, and thus can have no action on the tænia. M. Delieux de Savignac thought that we must, before having recourse to the ethereal extract, employ the seeds of the pumpkin, which have always yielded him excellent results. He proceeds thus: he makes an emulsion with 60 to 80 grammes of decorticated pumpkin seeds, to which he adds 30 to 40 grammes of castor-oil; then, two hours afterwards, he administers 60 grammes of castor-oil. M. Trasbot remarked that amongst animals, and particularly in dogs, tapeworms were very frequent, and that all the measures employed, pomegranate root, male fern extract, kouso, were alike efficacious; in particular, he spoke of a mixture of sulphuric ether and aloes, which afforded excellent results. In reference to food as causing tænia, we must distinguish the flesh of the ox from that of the pig and the sheep. As the first does not contain cysticerci, it appears to him difficult that it should give rise to the presence of tænia. M. Dally thought that we should not exclude the flesh of the ox as a source of tapeworm; for, in the study that he had made of the Abyssinians, he had shown that the frequency of tænia was due to the consumption of the raw flesh of the ox. M. Dujardin-Beaumetz was of opinion that in the treatment of tapeworm, we must, as remarked by M. Laboulbène, attach great importance to the moment when the purgative is administered. The anthelmintics do not kill the tænia; they stupefy it; and we must seize upon

the moment when the tænia is no longer fixed to the intestinal walls in order to expel it by a purgative. He, however, admitted that it was very difficult to fix the time correctly. M. Féréol said that there were cases in which the tænia resisted, whatever be the method employed; he had at that time a case under his eyes where he had nine times made attempts that had all been frustrated; the tænia had always reproduced itself. He had employed all the anthelmintics in vogue, and had been obliged to follow the indications laid down by M. Laboulbène for the administration of the purgative. All had failed. M. Constantin Paul believed that in many cases it was very difficult to obtain the complete extraction of the tænia. He nevertheless mentioned a remedy given at Geneva (where the bothriocephalus is frequent) with excellent results. It consists of Peschier's pills, made with the ethereal extract obtained with the fresh buds of the male fern. The pills are thus given: the evening previously the patient is put on a milk diet, and afterwards twenty pills are given in two doses. This remedy produces very sharp colic. M. Blondeau called to mind that in the *Traité de Thérapeutique* of Trousseau and Pidoux one all along finds the treatment advocated (*préconisé*) by M. Laboulbène. In connection with the bothriocephalus he related the following fact, which had been communicated to him by M. Potain. It referred to a family where the presence of this worm had been observed. This family had never travelled, and, above all, had never been in Switzerland. In seeking for an explanation of the cause of this fact, it was learnt that the servant had been Swiss, and had for a long time a bothriocephalus. M. Legroux had seen an analogous case. It referred to a lady who had contracted a bothriocephalus in Switzerland. Returning to Paris, she underlet a portion of her house to a gentleman, who, never having travelled, became at length also infested by the same cestode. [The reporter is desirous of expressing his surprise that M. Trasbot should be ignorant of the existence of cysticerci in beef, after the experimental proofs adduced first by Leuckart, in Germany; secondly, by the reporter, with Professor Simonds, in England; and thirdly, by St. Cyr, in France. The distinguished Parisian helminthologist, M. Davaine, has given an excellent summary of these experiences in the exhaustive article *Les Cestoides*, in the newly issued edition of the *Dictionnaire Encyclopédique des Sciences Médicales*.—*Rep.*]

T. S. COBBOLD, M.D.

LIEBIG ON THE OPERATION OF COMPRESSED AIR.—Dr. von Liebig, of Reichenholt, has in a recent number of the *Aerztliches Intelligenz-Blatt* of Munich, given an account of the further results of his experiments on the effects of compressed air, of which the following is an abstract, at least of its more purely therapeutic portion.

Dr. Liebig had on a former occasion determined the mechanical effects of compressed air on the system, and also made some experiments on the amount of carbonic acid given off under it; his further researches have shown, that any increase of expired carbonic acid coincides with a greater inspiration of atmospheric air, and that the quickness of respiration has a much greater effect in producing carbonic acid, than its depth. On the whole, compressed air has not in itself any very natural effect on the production of carbonic acid. As it has been found that the number of inspirations is reduced

under increased pressure, so it is found to be greater under diminished pressure, and it seems probable that under the latter circumstances the quantity of carbonic acid expired may be greater.

From his experiments on oxygen Dr. Liebig deduces the inference, that there is undoubtedly increased absorption of oxygen under high pressure—relatively amounting to 18, and absolutely to 22 per cent.

The increased absorption of oxygen under heightened absorptive pressure, helps materially to explain the good effects of the pneumatic apparatus on patients. These effects are most strongly manifested in diseases which are attended with a deficient supply of oxygen, and we understand now how so much relief is afforded by increased pressure to old chronic bronchial catarrhs and emphysemas—why the livid skin resumes its natural tint, and appetite and strength return. These patients have to breathe as hard as they can to get a supply of oxygen, and increased pressure makes their respiration easier and facilitates the absorption of oxygen, which is equivalent to an absolute increase of the amount of oxygen in the blood. The improvement of many anæmic cases is also rendered intelligible. The mechanical effect of compressed air in chest-affections further gives the power of taking deeper inspirations, a power which lasts after the treatment is over—and therefore greatly increases its value.

We now see that the operation of compressed air is partly mechanical, partly chemical. The first facilitates the return of the blood to the heart, while it makes pressure on the capillary vessels. We have to thank it for the favourable effects in neuralgias, especially of the head, in headaches and toothache, and in the stopping of bleeding from the nose or lungs. It also, if seasonably applied, quickly checks acute catarrhs of the larynx, the bronchi, and the nose and ears; and no treatment gives such relief in whooping-cough.

Its chemical operation gives an additional supply of oxygen to the blood, and relieves chronic catarrhs, emphysemous asthmas, anæmia from loss of blood, or after illness, and finally amenorrhœa.

In cases of recurrent bronchial catarrh, with asthma, it is frequently possible to ward off an attack.

In children especially, who suffer from an early age from bronchitis and asthma, Dr. Liebig has often observed that southern health-resorts or bath-treatment only gives temporary relief, while by compressed air the tendency to relapse is greatly diminished. He also finds the use of the pneumatic chamber of much use in children with imperfectly developed chests.

In an anæmic patient with excessive nervous sensibility, when all other treatment at Reichshall had failed, the pneumatic chamber had the most wonderfully soothing and strengthening effect.

In cases of recent pleuritic affections Dr. Liebig has not used compressed air, because baths, fresh air, and whey, were sufficient for the cures. But in cases of old pleuritic exudations, in which the walls of the chest were partially sunk, great advantage has been derived from the pneumatic chamber, which, however, is only to be used in the absence of a febrile condition.

In slight affections of the heart, depending on defects of the right side, slight degrees of pressure have given favourable results, and improved the general health. In more serious affections of the heart and of its left side, compressed air is no longer

used, partly on theoretical grounds, and partly on account of its having aggravated the sufferings in one case.

Although increased pressure is often useful in anæmia, a certain number of such cases are undoubtedly benefited by the diminished pressure of moderate heights, but which set of cases are suited for the one or the other mode of treatment is as yet imperfectly determined.

The use of pneumatic chambers is extending fast to many watering-places, and the chambers of Reichenholt have been extended, so that fifteen persons can sit in them at once. J. MACPHERSON, M.D.

ELECTRO-THERAPEUTICS.

NEWMAN ON ELECTROLYSIS IN THE TREATMENT OF STRICTURES OF THE URETHRA.—Dr. Newman, of New York (*Archives of Electrology and Neurology*, no. 1, New York: 1874.), has treated a number of cases of simple and complicated strictures of the urethra by the electrolytic method, which was, without exception, successful. Although he has no failures to record, he does not wish to condemn every other treatment, or to say that all strictures can be cured by electrolysis; yet he is so well satisfied with the results of the method that he will not use any other mode of cure.

He follows the method recommended by Mallez and Tripiér, viz., to use the negative pole exclusively for the 'absorption' of the stricture, while the positive is applied outside. A moderate current should be used, for, by employing a superabundance of electricity, too much inflammation is induced, destruction of the surrounding healthy tissue takes place, suppuration intervenes, and thus aggravates the disease. The current should therefore never be strong enough to lead to destruction of tissue, but simply restore the affected parts to their normal condition. He uses Drescher's battery, in which the current can be regulated cell by cell, without interruption, and the quantity of electricity in all the cells can be increased or diminished at will by the screw-lifting arrangement, by which the elements can be immersed into the battery-fluid to any desired depth. The catheter used for the negative pole consists of a metal bulb, to which a rod of wire is attached, and over which a flexible catheter is fixed, cut off at its extremity, and connected with the metal bulb, thus obtaining a smooth and continuous surface. The bulb is egg-shaped, about half an inch long, its length proportioned to its diameter. The elastic catheter acts as an insulator, and at the free end the rod is connected with the conducting-wire of the negative pole of the battery. The catheters are made in sets of different sizes.

The author then proceeds to give a somewhat fanciful description of the effects of the negative pole upon the mucous membrane, amongst which he mentions 'agitation' and 'coagulation (!) of alkalies.' Some experiments on the urethræ of dogs are given, but they fail to elucidate the author's meaning, except in so far as the prejudicial effect of too strong currents is concerned.

Dr. Newman says that there are three principal methods of using electricity for the cure of stricture; viz., electrolysis with a mild current, the galvanic cautery, and powerful electrolysis. We have, however, up to the present time, never heard that anyone

selected the last two proceedings, which must in the nature of things be thoroughly objectionable. Dr. Newman says that 'the galvanic cautery violently forces a passage, burns its way through the impediment, the result being a firm and hard scab on the walls of the urethra. After the operation, the patient must be left alone until the scab has come off, and many weeks must elapse before a normal mucous lining is formed, even on a healthy urethral wall. A scab thus produced firmly adheres to the walls of the urethra, and cannot without danger be removed by the operator; interference would be highly reprehensible. If an attempt be made to accelerate the separation by instrumental manipulation, serious consequences are sure to follow. The boundary between the scab and the adjacent healthy mucous lining is always a weak spot, and any exploring instrument used in contact with or beneath the scab, might cause rupture of the urethra.' We trust that in framing these remarks the author may have drawn entirely upon his imagination, for nothing could be more unjustifiable than the use of the galvanic cautery for stricture of the urethra.

The time used for the electrolytic operation is from three to four minutes; the current should at first be very gentle, and gradually increased until the patient feels a slight pricking and burning; when the operation is over, the instrument should only be disconnected after the current has been gradually reduced to zero. On withdrawing the bougie electrode, its metal bulb is seen surrounded by a frothy yellowish mass, looking like coagulated albumen. This product is part of the stricture which has been decomposed. The operation should be repeated fortnightly or monthly, until the urethra has entirely recovered.

Most of the cases recorded by the author seem to have been cured by two or three operations. The descriptions of some of the cases are not sufficiently detailed, and it is not always easy to see whether dilatation has not had something to do with the successful result.

BEARD ON A NEW METHOD OF TREATING MALIGNANT TUMOURS BY ELECTROLYSING THE BASE. Dr. Beard, of New York (*Archives of Electrology and Neurology*, no. 1, New York, 1874), adopts the theory that there is a constitutional cancerous diathesis, which, like the tubercular or gouty diathesis, is subject to the laws of hereditary descent; but that, for this diathesis to develop into positive local disease, it is necessary that there should be an exciting cause. The chief exciting causes of malignant tumours are, according to him, injuries, and damp and cold. The latter influence he derives from the statistics of Professor Andrews, of Chicago, who has shown that in the States cancer diminishes as we proceed to the west or south—away from the sea-coast and towards warm latitudes. The cancerous tumour therefore he considers a local disease, which, whatever constitutional treatment we may adopt, should be treated locally, and by some method of local treatment that acts not only on the body of the tumour, but also on the surrounding tissue; and the earlier such treatment is used, the better the prognosis. He says that cancer spreads like a fire on a prairie, and we must fight it as we fight a great fire, not by useless efforts to save the parts already destroyed, but by drawing a cordon round it, between it and the healthy tissue.

Taking this view, he looks upon the ordinary method of removing the tumour by excision, and

then closing the wound so that it may heal by first intention, as one that is sure to cause a relapse; inasmuch as an areola of morbid or semi-morbid tissue is left mingled with healthy tissue, and the cancer-cells are thus shut up in a soil best of all adapted to nourish them.

The ordinary method of electrolysis, where needles are inserted into the body of the tumour, has the advantage of relieving pain, and causes a diminution, and in exceptional instances, total destruction of the growths; but is in most cases ineffectual to retard the progress of the disease. He has therefore, for some time past, used what he calls electrolysis of the base, which is performed in the following manner. The patient is fully etherised. If the tumour be small, the positive needle is inserted underneath the tumour and near the border; the negative needle is then inserted also underneath the tumour, at some distance below the base of the growth, so that the point emerges on the opposite side. Active electrolysis is now commenced, and must be evidenced by yellowish foam appearing at the cathode, which gradually becomes loosened. As the action increases the cathode may be slowly worked from side to side, with a slight cutting motion, so as to undermine the tumour. The positive needle meanwhile remains inside; it becomes firmly adherent through oxidation, and is not removed until the end of the operation.

After the tumour falls off, through the thorough undermining of the base, the latter may be worked up in all directions with the needles, or with a harrow electrode, which Dr. Beard has devised for this purpose. After the removal of the growth the position of the poles is changed, so that all parts of the surface may receive the benefit of the action peculiar to both poles. If the tumour be a large one, it is better to have it first removed by the knife, and the base can then be worked up in the manner just described. The cavity after the operation has a charred appearance. The time required for the operation varies from ten to forty-five minutes. Little or no pain follows. The needles used are long, spear-shaped, double-edged, and tolerably short, so that a slight cutting action may be combined with the purely electrolytic action. They are not insulated, excepting that portion which is grasped by the hands in operating. From sixteen to thirty-two cells of Stohrer's battery are requisite.

The advantages of electrolysis of the base of the tumour are:

1. *Less liability to recurrence.*—When both poles of the battery are inserted into the tumour in the way described, the vibrations of the electric force not only pass between the electrodes, but extend to a considerable distance in all directions, whereby the nutrition of the surrounding tissues is modified. In this way it is possible that the degeneration of healthy into morbid tissue, may be prevented at a distance from the needles. Of course, it is necessary that the operation should be thoroughly performed. If the base be but half electrolysed, if patches of morbid tissue be allowed to remain, then there will most likely be a relapse. It is better not to use the method at all than to use it timidly or imperfectly.

2. *Less hæmorrhage than in other modes of operating,* owing to electrolysis coagulating the blood, constricting the tissues, and slightly cauterising them. Of course, when a considerable artery has been ruptured, it should be tied, but ordinary parenchymatous hæmorrhage is quite controlled.

3. *Less liability to shock*, even in very old and feeble persons, and after long applications of strong currents. Dr. Beard looks upon the electric current as one of the best antidotes of shock, seeing that it is useful as a means of resuscitation.

4. It is followed by a *more satisfactory healing* than other operative procedures.

5. *Pyæmia* and *septicæmia* are less likely to follow electrolysis than other surgical operations.

6. Many patients *dread the knife*, without reason or common-sense; but patients are not expected to exercise reason or common-sense; and such persons are willing to submit to electricity, however employed.

The disadvantages of the method are, that more or less bulky apparatus is required, that more time is necessary than for excision, that irritative fever follows a powerful and prolonged application, more especially on the second and third day, and when great sloughing ensues, in very vascular growths, there may be secondary hæmorrhage from blood-vessels that become involved.

Dr. Beard has not appended any cases to his paper, and we trust he may soon give us a full description of all malignant tumours treated by him in this manner.

JULIUS ALTHAUS, M.D.

RECENT PAPERS.

A Case of Progressive Muscular Atrophy with General Paralysis treated successfully by the Galvanic Current. By Dr. Bonadei. (*Il Galvani*, March, 1874.)

The Good Effects of Electricity in a Case of Partial Peripheral Paralysis with Convulsions in a Hysterical Subject. By Dr. F. Santopadre. (*Ibid.* March, 1874.)

On Electrolysis considered in Organised Beings and in the Therapeutic Application of Galvanic Currents. By Dr. L. Ciniselli. (*Ibid.* April, 1874.)

DERMATOLOGY.

COLOMIATTI ON THE STATE OF THE MALPIGHIAN LAYER IN PSORIASIS.—Dr. Colomiatti, in a paper read before the Royal Academy of Medicine in Turin, and published in the *Giornale* of that society for June 10, describes the results of the examination of the skin of a man aged thirty, who had died in hospital while suffering from psoriasis. The disease first appeared as psoriasis guttata, and subsequently assumed the nummular, figurate, and diffuse forms. At one time it was accompanied with scaly eczema. At the time of death, nearly the whole body was affected.

Twenty-four hours after death, pieces of skin were taken from various parts, some being derived from parts where cadaveric maculæ were present. The pieces were left in Müller's fluid for four or five days, and were then placed in ordinary alcohol. Fine sections were made, and examined under the microscope, some in glycerine, some in damar; in all, it was found that one of the principal lesions consisted in hypertrophy of the papillæ, with dilatation of the capillaries and much sanguineous injection. The horny layer of the epidermis was wanting, and the more superficial layers were detached from the Malpighian; these elements, together with those of the horny layer itself, formed scales, which became detached during the process of preparation. All this could be seen with a low magnifying power, corresponding to Hartnack's no. 3, with no. 4 objective. It was seen that the interpapillary prolongations

of the epidermis were much more developed than in the normal state, and that, on raising them from the hypertrophied papillæ, there existed between one papilla and another a more or less deep depression, from the bottom and sides of which epidermic cells were detached; that the epidermic covering in the apex of the papillæ was very scanty; that there was not only much capillary injection in the papillæ, but also some extravasation; and that, where there was no extravasation, the capillaries were contorted like varicose vessels, and formed balls at the apex of the papillæ, with some very scanty connective tissue at the free margin.

On using a no. 8 objective, Dr. Colomiatti found that the hypertrophy of the papillæ did not depend merely on dilatation of the capillaries, but that there was also an increase of the connective tissue, consisting of a numerical increase of the cells, but especially of the hyaline substance. Some of the cells were round, small, like wandering cells; some were spindle-shaped; and several were furnished with numerous prolongations, some of which were branched, slender, and long, and were directed towards the circumference of the papillæ.

In the Malpighian layer, with Harnack's no. 8, Dr. Colomiatti saw the hair-like processes of the cells, and the spaces between them better than in any other parts. With an immersion-objective no. 9, and an ocular no. 4, he found that, while in some parts the greater part of the cells also retained almost their normal size, in many there was a defect of protoplasm; and these presented the longest processes. The protoplasm in all the cells had an appearance which might be called homogeneous; it was well circumscribed at the periphery, from which the hair-like processes were seen to arise. These, being derived from the protoplasm itself, were nearly hyaline. The number of processes from each cell was in some places increased, in others less than normal; so that the spaces were in the first case numerous and narrow, and in the second fewer and larger. No enlargement was observed at the free end of the processes; on the contrary, they were almost conical, their base being continuous with the cellular protoplasm. The scarcity and homogeneity of the protoplasm were most marked in the cells immediately covering the hyaline layer of the papillæ. The papillæ themselves were relatively much elongated and narrow, and their greatest diameter was perpendicular to their point of implantation. Some of the hair-like processes were evidently implanted in the hyaline layer of the papillæ, and, meeting the prolongations of the connective-tissue cells, joined them at their apices, or if they did not so, were so closely connected with them that no point of separation could be discerned.

In many of the epidermic cells there was a slight serous infiltration, like that which occurs in the early stage of the pustules of small-pox.

Dr. Colomiatti believes that in addition to the signs described by other writers, psoriasis is characterised by scantiness and homogeneity of the protoplasm of the cells of the Malpighian layer, with slight serous infiltration of the cells; by their elongation, and by excessive development of the hair-like process, with exaggeration of the intervening spaces.

Dr. Colomiatti has also examined portions of skin removed from a patient under the care of Dr. Gibells, and has found similar appearances to those above described.

A. HENRY, M.D.

MISCELLANY.

It is proposed to open in Berlin, on October 15, an institution for the instruction of ladies in medicine and pharmacy.

ASSOCIATION OF HUNGARIAN NATURALISTS AND PHYSICIANS.—The meeting of this Association will be held in Raab, commencing on August 15, and ending on the 23rd.

SMALL-POX AND TYPHUS IN STOCKHOLM.—Small-pox and typhus fever, which have been prevailing extensively in Stockholm, showed a decrease in the week from July 4 to 10. There were 54 new cases of small-pox, and 10 deaths, against 76 cases and 18 deaths in the previous week. There were remaining under treatment 177 cases of small-pox, and 43 of typhus.

CHOLERA IN HUNGARY.—The official report of the late outbreak of cholera in Hungary shows that from September 1872, till the end of 1873, 190,000 fell victims to this dreadful scourge. The official weekly health returns of some of the Hungarian towns are strikingly large; in Pesth, for instance, from June 21 to June 27 of this year, 239 births were registered, and 262 deaths. The weather in that week was moderately cool, therefore in no way unfavourable, and yet the excess of deaths over births among the 260,000 of the capital amounted to twenty-three.

ASSOCIATION OF GERMAN NATURALISTS AND PHYSICIANS.—The Forty-seventh Annual Meeting will be held in Breslau during the week from September 17 to 24. The following is the programme of the daily proceedings: Thursday, September 17, evening receptions in the Liebig's rooms (Gartenstrasse); Friday, 18th, 9 to 12.30, First General Meeting; 1 P.M., Opening of Sections; 3 P.M., Festival in Springer's Rooms; evening, Conversazione in the Zoological Gardens. Saturday, 19th, 8 to 1, Meetings of Sections; dinner in the various hotels and restaurants; 7 P.M., Concert. Sunday, 20th, Excursions to Fürstenstein; to Landeck, by invitation of the town to the medical sections; and to Sibyllenort. Monday, 21st, 10 to 12.30, Second General Meeting; 3 P.M., Festival in Springer's Rooms; 7 P.M., Performance in the Town Theatre. Tuesday, 22nd, 8 to 1, Meetings of Sections; dinner in hotels and restaurants; evening, Ball given by the merchants. Wednesday, 23rd, 8 to 1, Meetings of Sections; dinner in hotels and restaurants; evening, Festival given by the town of Breslau. Thursday, 24th, 10 to 12.30, Third General Meeting; 3 P.M., Festival Dinner at Springer's Rooms.

PRINCE LEOPOLD.—A good deal of prominence has been given during the last few days, and on former occasions, to telegrams condoning the serious illnesses of Prince Leopold. It may be well, therefore, to explain that the illnesses to which reference is thus made are nothing more than the accidents which from time to time rarely fail to embarrass a young man who suffers from the particular form of constitutional delicacy to which the young prince is liable. It has been already made known that Prince Leopold is one of those persons who have an inherent thickness of blood, which makes every slight scratch give rise to a more or less serious hæmorrhage, and makes the little accidents and bruises which are incidental to active life, matters of more or less serious subsequent inconvenience. It is rather a hard fate, however, that every one of these should be chronicled, and that every time the prince cuts his finger, or that his foot slips, and he gets a little strain or a bruise, competing telegraphists should fill the newspapers and posters with paragraphs concerning his serious illnesses. We have all a natural and loyal interest in the health and welfare of the Queen and her family; but we are inclined to think that in the case of Prince Leopold such interest would be best shown by letting him alone a little.

PROFESSOR LEBERT of Breslau has resigned his chair, and has gone to practise as a bath-doctor at Bexh, canton Vaud, in Switzerland.

INTERNATIONAL SANITARY CONFERENCE AT VIENNA. An animated and interesting debate took place on the question 'Is man a vehicle for cholera, and can he carry it from one place to another?' Pettenkofer, of Munich, supported the view, founded, as he said, on his own observations and experiments, that cholera could be carried, not only by persons attacked, but by those who were unattacked, and in good health. He insisted above all on this point, that locality plays one of the most important parts. In support of his view he cited the cases of the towns of Munich, Spire, and Heilbronn, which were invaded by cholera last spring; it had not been proved that the cholera had been brought there. Dr. Drasche, of Vienna, maintained that the examples cited, in which it had not been proved that cholera had been carried, were not conclusive against the fact of introduction. As to the possibility of the disease being carried by persons in good health, there had hitherto been no observation which justified the assertion. M. Schleisner, of Denmark, expressed the same opinion. Dr. Zehender, of Switzerland, maintained also that the introduction of the disease could take place by means of infected persons, without it always being possible to obtain proof. The meeting was unanimous in replying in the affirmative to the question: If articles coming from infected places, and particularly those used by choleric patients, could carry or transmit cholera? There was more division of opinion on the question whether cholera could be transmitted by alimentary matters, and by live animals. The question relative to the transmissibility of the disease by the corpses of choleraic patients, was answered unanimously in the affirmative. The proposition that the disease might be propagated by means of the air was adopted with certain restrictions. The question relative to the duration of the time of incubation of the disease was much discussed. Finally, the majority concurred in the opinion expressed at the Conference at Constantinople, namely that there was a period of incubation which was relatively very short.

NOTICE.

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The London Medical Record.

WEDNESDAY, AUGUST 5, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

THE INTERNATIONAL SANITARY CONFERENCE IN VIENNA.*

The sittings of the International Sanitary Conference held in Vienna commenced on July 1. The following were the members appointed as representatives of their various countries. *Austro-Hungary*: Baron von Gagnern; Dr. F. Ulrich, Councillor in the Ministry of the Interior; Ritter August von Alber, President of the Maritime Board at Trieste; Herr Haardt von Hartenthurn, Councillor in the Ministry of Commerce; Dr. A. Drasche, Physician to the Rudolf's Hospital; Professor C. L. Sigmund, of Vienna; Dr. L. Gross, Councillor in the Hungarian Ministry of the Interior; Herr H. Catinelli, Councillor in the Maritime Department at Fiume; Dr. J. Schlosser, *proto-medicus* in Hungary; Dr. N. Severinski, Regimental Surgeon in Croatia. *Belgium*: Dr. Henrard, Sanitary Inspector in the Ministry of the Interior. *Denmark*: Dr. P. A. Schleisner, Chief Physician in Copenhagen. *Egypt*: His Excellency Colucci Pacha, President, and Dr. Regnier, Secretary, of the General Council of Health. *England*: Dr. Dickson, Physician to the British Embassy in Constantinople; Dr. E. C. Seaton. *France*: Baron von Ring, Secretary to the French Embassy in Constantinople; Dr. Fauvel, General Inspector of the Sanitary Department. *Germany*: Dr. von Pettenkofer, of Munich; Dr. A. Hirsch, Professor in the University of Berlin. *Greece*: Dr. D. G. Orphanides, Professor in the University of Athens, and President of the Council of Health. *Holland*: Dr. H. L. Reeder, Marine Sanitary Officer, first class; Dr. H. von Kapelle. *Italy*: Dr. M. Semmola, Professor in the University of Naples. *Luxembourg*: Dr. Schmidt, President of the Natural History Society. *Norway*: Dr. J. Kjerulf, Chief of the Sanitary Board in Christiania. *Persia*: Dr. J. E. Polak (Hekim Baschi). *Portugal*: Dr. J. T. de Souza-Martins, Professor in the Medical School of Lisbon. *Roumania*: Dr. Marcovitz, member of the Superior Council of Health. *Russia*: Dr. E. Lenz; Dr. M. Kastorsky, physician to the Russian Embassy at Teheran. *Servia*: Dr. S. Miloshavlennitsch, chief of the Sanitary Department in the Ministry of the Interior. *Sweden*: Dr. N. J. Berlin, President of the College of Medicine. *Switzerland*: Dr. C. Zehender, District Physician in Zürich; Dr. A. Ziegler, Secretary of the College of Health in Bern. *Turkey*: Dr. Bartoletti, General Inspector of Health; Ali Bey, member of the Council of Health in Constantinople.

The first meeting was held on July 1, when Count Andrassy, Minister for Foreign Affairs, welcomed

the delegates in the name of the Emperor, and declared the Conference opened. Baron von Gagnern was chosen President, and Professor Pettenkofer, Dr. Fauvel, and Dr. Lenz, Vice-Presidents.

Professor Sigmund addressed the members of the Conference in the following terms.

‘In obedience to the call of our respective governments, we have assembled in Vienna, to consult together and arrive at conclusions on a matter deeply concerning the life and well-being of nations; on the establishment of uniform quarantine regulations, and the formation of an international commission on pestilential diseases. The pestilence, which in its periodical visitations during more than four decades has snatched away millions of men from countries in the most flourishing civilisation, which has thousandfold imperilled international intercourse, and which ever threatens to advance, was well fitted to induce the governments concerned to enter on a common course of action, in order to frame adequate and generally applicable regulations as to the means of warding it off. The views which have within the last few years become extensively diffused regarding the origin and spread of cholera, have led to the adoption of quarantine regulations, very various in kind, and in part contradictory of each other. We all know that very lately the doctrine of the communicability of cholera has become generally prevalent, and that, in consequence, numerous sanitary and quarantine rules, very various in kind, have been suddenly and quite independently introduced and carried into force in places where, shortly before, the utility of quarantine was altogether denied. While quarantine regulations are defended more or less warmly on humanitarian grounds, there must still be severe injury to commerce and intercourse from those newly instituted. Especially, in recent years, in the Red and Mediterranean, as well as in the Black and Adriatic Seas, and on the banks of the Lower Danube, at numerous stations of greater or less importance, numberless impediments to commerce have arisen, and have produced uncountable evils which, moreover, have in no case been counterbalanced by the advantage of preventing the spread of the disease. Most of the quarantine regulations, adopted or modified from the old regulations against plague, are in direct contradiction to the discoveries of science and experience, in open opposition to the prevailing tendency of the age. Not only concerning the more or less numerous impediments and interruptions of commerce, but especially concerning the very remarkable differences in quarantine regulations in the same districts of country and in certain ports, have well-founded complaints often been made in recent years; but almost in vain, for each individual Government upholds its regulations as in conformity with its own laws and suitable to local conditions. In the presence of such facts, it occurred to the Austro-Hungarian and Russian Governments to bring the question of cholera quarantine again under the consideration of an International Council. The programme laid before the Conference, as a guide to their proceedings, combines on the one hand the results of the Cholera Conference in Constantinople, and, on the other hand, the hitherto known facts and propositions, in order especially to obtain the conclusions of the Conference on two points, viz., first, the establishment of uniform quarantine regulations against cholera; and, secondly, the appointment of an international commission on pestilential diseases. With regard to

* From the *Allgemeine Wiener Medizinische Zeitung* and the *Allgemeine Medicinische Central-Zeitung*.

quarantine, the programme, without anticipating the opinions of the members, has, in the first place, assumed the protective power of quarantines and their continuance; but it has had only maritime quarantine especially in view, and, along with the lessening and simplifying of all sanitary measures, has especially put forward the question of uniformity. The idea of taking into consideration, as far as possible, the demands of humanity and of society, and of using quarantines simultaneously—at least partly—as stations for scientific observation, will also come under consideration. The proposal of an international commission on pestilential diseases rests on various grounds. In the discussion of technical questions points arise, for dealing with which sanitary and quarantine legislation still expects solid assistance from science. In the face of the international calamities which pestilences generally, and cholera in particular, have, like quarantine, brought on nations, the idea has rightly arisen, to form a central organ which, receiving material and moral aid from the governments, should concern itself with the establishment and guidance of the study of pestilential diseases on a determined plan and for a sufficient time, and which would at the same time serve as a skilled council on all international questions arising with reference to these diseases, especially with reference to quarantine. Against such dire enemies as epidemics and epizootic diseases, great measures of prevention may well be established. To promote these measures, to determine their nature, and to make them conducive to the common good of all, is not within the power of individuals, nor even of individual kingdoms. We are all acquainted with the labours of single experts and single corporations, which have been undertaken in this direction, and whose results have not been very satisfactory, principally because the labours have been undertaken with too little power, in too short a time, on too narrow a scale, without sufficient pecuniary aid, and carried on without a plan. Very recently the German Government has called into existence a state-commission, with a similar but limited object. The double object which the programme lays before the Conference affords material and opportunity for the most comprehensive conclusions; but I express the opinion of all the members, when I bespeak as conclusive and practical a treatment as possible of the questions.

A programme of twenty-six questions was submitted to the Conference, and discussed *seriatim*.

I.—Development and Spread of Cholera.

1. Is contagious (epidemic) cholera only developed spontaneously in India, and introduced always into foreign countries from without; or does it also occur endemically in countries beyond India, and in which?—Dr. Dickson (Constantinople) communicated the results of his observations on cholera in India. From statistic data he deduced evidence that there had not been a single case of cholera in Bombay this year; and, that the sanitary condition of India had been remarkably improved in consequence of the sanitary measures adopted by the Government. This did not prove that India was not the focus of cholera, but it showed how much the evil might be obviated by precautionary measures.—Dr. Hirsch (Berlin) defended the view that the starting-point of cholera was to be sought in India.—After some discussion, the Congress agreed in the opinion that cholera has an autochthonous character in no part of the world beyond India; that it has not become endemic in

Europe, but that the epidemics of the disease are to be regarded as having had their origin in India.

2. Is cholera spread by man?—A long debate took place on this question. Professor von Pettenkofer (Munich) was of opinion that cholera might be conveyed not only by the diseased but by the healthy. The nature of the locality played an important part in the spread of the disease. In the epidemic which prevailed last year in Munich, Spiers, and Heilbronn, no importation could be discovered.—Dr. Drasche (Austria) replied that the instances quoted in which importation could not be traced, did not prove that this did not take place. In thousands of cases the epidemic could be traced back to a certain diseased individual; when this was not the case, it arose from the investigation being rendered difficult or impossible through the complications of commerce. There was not a single observation which could bear scientific criticism, in favour of the communication of the disease through healthy individuals.—Dr. Schleisner expressed the same opinion, and supported it by the observations which he had made at numerous places on the coast.—Other members spoke to the same effect, and the Congress arrived at the general conclusion that cholera is communicated by human intercourse.

3. Can cholera be communicated by articles of ordinary use coming from infected places, especially those which cholera patients have worn?—This question was answered in the affirmative, without debate.

4. Can cholera be communicated by articles of food, or (5) by living animals?—These two questions gave rise to a long debate. Drs. Pettenkofer, Hirsch, and Zehender, gave affirmative answers; Dr. Dickson and Drasche denied or limited the possibility of cholera being spread in this way. The Congress finally concluded that these modes of communication were possible.

6. Can cholera be communicated by the transport of merchandise?—[This question was on the programme; but there is no statement as to the decision arrived at respecting it.]

7. Can cholera be communicated by the dead bodies of cholera-patients?—Dr. Polak communicated a telegram which he had received from the Persian minister for foreign affairs at Teheran, stating that in future the transport of the bodies of cholera-subjects to Kerbela (the place of pilgrimage) would not be allowed until they had been buried a year; and the burial-grounds must be outside the towns.—The question was unanimously answered in the affirmative.

8. Can cholera be carried to a distance by the atmospheric air alone?—The Conference accepted the decision of the Conference at Constantinople in 1866, that it is a law, to which hitherto no exception is known, that cholera never advances more rapidly than can be accounted for by the communication between one place and another. Hitherto, there has been a want of evidence in favour of the conveyance of the cholera-poison by the atmosphere.

9. Has the access of fresh air to the agent producing or spreading cholera any influence on its infectious property, or not?—This question was unanimously answered in the affirmative, in the sense of the conclusion arrived at by the Constantinople conference, that the choleraic principle very rapidly loses its deleterious action in fresh air; but that on the other hand, its power is maintained in activity for an unlimited time under certain special conditions of seclusion.

10. What is the length of the period of incubation in a case of cholera infection?

On this question a long discussion took place, which was begun by Dr. von Pettenkofer. He regarded it as not yet ripe for a positive reply, and said that therefore only an approximative determination of the period of incubation could be given. In his researches during the last epidemic of cholera in Munich he had found an average period of fourteen days; but the experience already attained was not sufficient to determine the maximum period of incubation, however desirable this might be.

Dr. Drasche said that, according to his observations of the cholera epidemic in Vienna in 1873, the average duration of the incubation in any locality was from eight to ten days. The period, however, approached that named by Pettenkofer, if the calculation were made from the day of death. The condition was otherwise when the day on which the disease appeared was made the base of the calculation.

Dr. Zehender spoke in favour of a much shorter incubation period as a general rule; there were, however, cases where incubation was of longer duration.—Dr. Dickson considered that the subject was not yet ripe for discussion.—Dr. Kjerulf believed that there was only a short incubation period, varying from two to five days.—Dr. Orphanides communicated the result of his observations in the Grecian islands, which tended to show that cholera had an incubation-period of from five to seven days.—Dr. Schleisner adduced several cases from his own observation, and spoke in favour of an incubation-period lasting three or four days.—Dr. Schmidt had seen a case in which the duration of incubation was eighteen days.—Dr. Berlin insisted on the difficulty of arriving at a decision, but maintained that the period was four days.—Drs. Semmola and Souza-Martins believed that the period of incubation was very short, and that it was dependent on the influence of climate.—The majority of the members adopted the opinion of the Conference at Constantinople, that the period of incubation was very short, rarely exceeding a few days.

11. Is a disinfecting agent or method known, by which the cholera-spreading agent can be rendered inert, or weakened? If there be such agent, what is it?—On the first part of this question, the Conference, after a long debate, arrived at the conclusion that as yet we know neither any agent nor means of disinfection, which destroys with certainty the cholera-germ adhering to man as object. The possibility, however, of discovering such an agent or method was not denied.—In regard to the question as to the power of any agent to weaken the cholera-poison, most of the members of the Conference spoke in the affirmative; and in this sense the utility of disinfection in combination with other sanitary measures was unanimously recognised.—The consideration of individual disinfecting agents was deferred, as it would again arise in the discussion of the twenty-second question of the programme.

(To be continued.)

LECTURE UPON THE GENERAL THERAPEUTICS OF THE NERVOUS SYSTEM. By E. C. SEGUIN, M.D.

(Concluded from page 468.)

CLASS C.

Tonics and Restoratives.

By restoratives I understand, with Headland, those remedies which restore to the system an element diminished by a disease, or whose diminution causes a disease. A few of this class are especially useful in diseases of the nervous system, two chiefly—phosphorus and fats.

I would not be willing to admit that there is any defined morbid state of the nervous system, which can be shown to depend upon a diminution of the phosphorus, which is so important an ingredient of nerve-tissue; yet I am the first to recognise that in some nervous diseases much phosphorus is excreted, and that in very many of them much benefit, even to a cure, is obtained by giving phosphorus. In practice the various phosphates, the acid phosphates, the hypophosphites, etc., if they do good, do so very slowly, and are hardly to be used in the treatment of serious cases, except as adjuvants. Phosphorus itself may be administered in the form of the official oil, or in the non-official solutions (Thompson's), and as phosphide of zinc. The dose of phosphorus ranges from $\frac{1}{40}$ to $\frac{1}{12}$ grain; that of zinc phosphide from $\frac{1}{6}$ grain to $\frac{1}{2}$ grain. In administering this powerful remedy, please bear in mind that some organisations are very susceptible to its toxic influence. In cerebral malnutrition, in neuralgia, in 'spinal irritation,' in hysteria, and in varieties of paralysis, this drug is of the highest value.

Fatty food and cod-liver oil are indicated in the conditions which demand phosphorus.

Among the tonics the chief are strychnia, arsenic, zinc, iron, quinia, and cold. Cold should, for its tonic effect, be applied only for a short period of time. This may be done by sponging, the shower-bath, cold compresses, the cold sheet, and sea-bathing.

A corresponding reaction follows, which consists in hyperæmia and improved nutrition. (*Vide infra*, counterirritants.)

We are unable exactly to explain why strychnia, or arsenic, or zinc should benefit the general nutrition, but daily experience teaches that these remedies are invaluable in many morbid states of the nervous system.

Strychnia, in cases of irritability, of hysteria, spinal irritation, and in some palsies, may be given in small doses for long periods of time; doses of $\frac{1}{40}$ grain or $\frac{1}{32}$ grain. The action of arsenic is often marvellous in chorea, and very satisfactory in other nervous diseases. Fowler's solution is the arsenical preparation most commonly employed, and in chorea it should be dealt out with no sparing hand; doses of $\mathfrak{m}\text{iv}$, $\mathfrak{m}\text{vi}$, or even $\mathfrak{m}\text{x}$ being well borne. The oxide and lactate of zinc have been much used in states of exhaustion of the nervous system, after sexual excess, or in chronic alcoholism, and in epilepsy. In the nervous states caused by alcohol, the zinc oxide proves almost as satisfactory as arsenic in chorea. I have usually employed it in combination with extract of nuxvomica. Since the introduction of bromide of potassium into general use, the zinc treatment of epilepsy has fallen into (perhaps unmerited) disuse.

M. PASTEUR, the eminent professor of chemistry in the College of France, has been obliged to resign his chair in consequence of failure of vision. The French National Assembly has granted him an annual pension of 12,000 francs (480*l.*), with remainder of one-half to his widow.

Quinia, in moderate doses, would seem to act as a tonic. It is possible that it does so by causing more food to be taken and digested, yet, from the immediate improvement in well-being and in cerebral activity, which many experience while taking it, I am inclined to the opinion that this remedy does exert a direct effect (restorative?) upon the nervous centres.

Iron I have not spoken of, because it does not especially affect the nervous system. It improves the condition of the blood, and, by so doing, cures morbid states of the nervous system (neuralgia), which depend upon anæmia or chlorosis.

Perhaps it were well that I should here speak of two so-called specific modes of medication, very useful in nervous diseases, and which would otherwise not enter the classification offered you. I refer to the treatment of constitutional syphilis, which often gives rise to morbid states of the nervous system. Nearly all of these morbid states are a part and parcel of the third (tertiary) stage of syphilis, depending upon affections of fibrous tissues of bones, of blood-vessels, and upon the presence of gummata in the nervous centres. I would only speak of one point in connection with this subject, and that is the necessity of using the iodide of potassium in really effectual doses, giving from ʒj to ʒvj a day, until improvement takes place. You will be surprised to see how a patient with tertiary syphilis will gain while taking ʒss of iodide of potassium in the twenty-four hours, after having resisted smaller doses. No unpleasant symptoms attend the taking of large doses, provided that restoratives and good food be also given.

The other specific medication is the treatment of malaria in its original form by quinia. Malarial neuralgia is a well-known and an obstinate affection. It may be cured by quinia in the usual way; but a much more rapid removal of the disease is obtained by using the quinia in the shape of hypodermic injections over the affected nerve. We then obtain the specific effect of quinia on the nervous centre and counterirritation on the nerve. Nearly seven years ago* I published the results of my experience with this medication in the New York Hospital, giving full details of the practice. As a general rule, in nervous disorders dependent upon malaria, do not err by giving too little quinia.

CLASS D.

Counterirritants.

By counterirritation is understood a localised irritation, which modifies the nutrition or mode of activity of another part than that irritated, either just beneath it or at a distance from it. Counterirritants almost always act through the spinal cord, and their mode of action is typified by a morbid process which takes place as a consequence of severe burns. If a limb or part of the body be scalded or charred, the patient is not in danger merely because of the shock of the injury, or of the exhausting discharge accompanying the healing of the burn, or of the pyæmia which may take place during the continuance of this suppuration, but he is also likely to suffer from certain visceral complications which occur in parts bearing a definite relation to the burn. Brown-Séquard demonstrated many years ago that on cutting

across the spinal cord, above the origin of nerves going to the burnt part, no visceral lesions occurred; thus proving that these lesions were set up by a morbid state of the spinal cord produced by the burn. The burn corresponds to our counterirritation, and the altered nutrition of the viscera to the distant effect produced. In the one case a morbid process is induced; in the other a beneficial change, not yet understood by us, is determined.

The alternate application of cold and heat does much to improve the nutrition of paralysed parts, and is used for many special purposes.

Brown-Séquard has recommended the use of these means to prevent the formation of bed-sores, and to heal those which may be already formed. The method consists in applying an ice or snow poultice over the part for five or ten minutes, following this by the immediate application of a hot poultice. This should be done once a day over the parts threatened with the formation of bed-sores. When the same thing is done twice a day to sores already formed, as a rule, sloughs come away, circulation is improved, and granulations will soon spring up. I have seen huge bed-sores healing under this treatment while the patient was failing.

The actual cautery is a means of the utmost value in the treatment of nervous affections. It is one, however, which has fallen into very great disrepute, in consequence of the manner in which it was formerly employed. A burn, sufficient to produce suppuration, is not necessary, surface-irritation being what we seek to produce.

The theoretical view that surface-irritation is most useful has, like several others brought forward in this lecture, a true physiological basis. It rests upon the well-known law that the terminal nervous twigs and their special terminal bodies are more irritable than nerve-trunks.

Brown-Séquard has revived the use of the actual cautery; and by means of his form of cautery we are enabled to produce much skin-irritation, with little pain to the patient, and no subsequent annoyance from sore surfaces.

The cauterising iron which he employs is tipped with platinum. The platinum never gets rough by ordinary heat, as does iron, and there is, consequently, a smooth surface to come in contact with the skin every time the cautery is used.

The white heat is necessary in using the actual cautery, because it produces the maximum degree of irritation to the nerve with a minimum of pain.

The cautery thus heated (in a coal-fire) should be rapidly drawn over the part selected, four or more strokes, of from one to six inches in length, being made. This can be done in a very few seconds, and in many cases no real pain is experienced by the patient. The strokes remain as reddish-brown welts, which are quickly surrounded by a zone of hyperæmia, which is sometimes immense. A moderate degree of burning pain is felt for twenty minutes or two hours after the application. Sores never result from the burning, and not once in twenty strokes have I ever seen blisters arise. The epidermis is cast off dry in a few days, leaving a brownish stain, which passes off wholly in a short time. The cautery can be used upon the face with perfect safety. I have made use of this most valuable means in women, and children thirteen years old, without anæsthetics. The disagreeable ideas connected with the words 'burning' and 'cautery,' in the minds of physicians and of

* 'On the Subcutaneous Use of Sulphate of Quinia in Cases of Malarial Neuralgia.'—*New York Medical Journal*, 1867, p. 402.

patients, the barrier to the more general use of the platinum cautery.

Setons have so much gone out of fashion that I need hardly stop to enter a protest against their use. It is very doubtful if a suppurating sore produces more irritation than the cautery or blisters, and there are grave objections to using setons.

Blisters are invaluable means of producing counter-irritation. Let me ask you to use them in such a way as not to produce suppuration; repeat the blisters and heal the blebs as soon as possible. Great good is often obtained from a series of small blisters.

Dry cupping is beneficial in many spinal affections. The number of cups applied should be large—from ten to twenty. It is not necessary to use the cups immediately over the seat of the disease. Ten cups may be applied upon the back, and ten in front, with the same benefit as if all were applied behind.

It is a matter of doubt whether wet cups act better than, or in a different manner from, the dry. The degree of skin irritation produced by the process of wet cupping is certainly very much greater than in that of dry cupping; and it cannot be positively denied that the loss of blood is useful. In various inflammatory affections of the cerebral and spinal meninges, and in some functional disorders, wet cups are still used.

Sulphur-baths do good by the irritation they produce upon the surface, rather than from any effect of the sulphur upon the system generally. These baths may be employed liquid or in the shape of vapour. For liquid sulphur-baths the sulphuret of potassium is dissolved in water, and the patient soaks himself awhile in the solution. A better application is obtained by vapourising sulphur in a chamber into which steam is let in, the patient's head being kept out of the bath, of course. A stay of ten or twenty minutes in this atmosphere produces a great deal of cutaneous irritation, which, in time, leads to a decided desquamation. Some of the natural sulphur-spring waters are also used for bathing purposes, but are much less effectual. In spinal diseases, particularly posterior spinal sclerosis (locomotor ataxia), series of such baths have done great good. They are also useful in lead-poisoning. Many medicated baths likewise act by producing extensive irritation of the skin.

CLASS E.

Electricity.

We employ all three forms of electricity in medicine, Franklinism or static electricity, galvanism (or voltaic electricity), and Faradism or induction electricity. Any one of these forms may be used in the treatment of diseases of the nervous system in a rational or an empirical way.

The rational applications of electricity are to produce muscular contraction (passive exercises) and to affect the nerves of sensation (irritation, sedation).

What I may call the empirical use of electricity is when we attempt, by means of it, to modify the mode of activity of deeply placed organs, such as the brain, spinal cord, and the ganglia of the sympathetic.

It would be out of place for me to attempt, in a few words, to speak of the special application of electricity. A great deal has been written about this matter in the last few years, and I am glad to say that there are a few small books on the subject which I would urge you to study. I need only say that within certain limits, corresponding with our physio-

logical knowledge, I have the greatest faith in the power of Faradism and galvanism as remedial agents, and that I use them a good deal.

CLASS F.

Hygienic Means, etc.

The cases of nervous disease which are strictly speaking active, due to hyperæmia, or over-action of the nervous centres, I regard as being exceedingly rare. Consequently, I regard the immense majority of cases as requiring a supporting diet and such hygiene as shall tend to improve nutrition.

There are very many points to be considered in this connection.

In the first place, many paralytics suffer from slow digestion and constipation. The diet of such patients should consist of such articles of food as leave little detritus, as meats, fish, eggs, milk, and fats. Vegetables and starchy or sweet articles should be allowed sparingly.

In the second place, the bladder in many cases (spinal palsies) requires to be emptied by means of the catheter. In such cases you cannot exercise too much gentleness and care in introducing the instrument, for fear of setting up cystitis, or of aggravating one already present.

Thirdly: In many spinal cases there is immensely exaggerated reflex activity of the spinal centres; spinal epilepsy is set up by the contact of the bed-clothes, your hand, etc., with the palsied limbs; and an overloaded bowel brings about attacks which seem spontaneous. By strict orders to the nurse, and by the help of mechanical contrivance, you can reduce these spasms to a minimum. If one occur, recollect that you can stop it by forcibly flexing one or both great toes, as indicated by Brown-Séquard.

Fourthly: I would ask you always to bear in mind that bedridden paralytics are peculiarly liable to fatal attacks of bronchitis, broncho-pneumonia, and pneumonic phthisis. Remembering this, you will give directions to obviate all that which might expose your patients to such chest complications.

Fifthly: Inasmuch as bed-sores are likely to occur among the complications of nervous diseases, a few words may be added to what has already been said concerning their prophylaxis.

It is important to make every piece of clothing beneath the patient smooth. Consequently, a pretty hard mattress or water-bed is the best for them to lie upon. Special care is to be taken that the under-sheet does not get wrinkled and drawn into folds; its ends may be fastened down by tapes. The shirt worn by the patient should be kept smooth under him, and perfect cleanliness must be enforced. Special attention to these apparently small matters will in most cases be sufficient to prevent the formation of eschars.

In case a bed-sore has formed, the best course to pursue is to clean away all necrosed skin and connective tissue (tow-like shreds) by means of forceps and scissors, and then to use the ice and poultice treatment as above detailed. When healthy granulations spring up ice poultices are still useful once or twice a day, to be succeeded by ointments or adhesive plaster strapping.

Sixthly: In the matter of coffee, alcoholic drinks, and tobacco; you will hear physicians asking their patients to give up the use of these articles, simply because they have a disease of the nervous system. I am afraid, gentlemen, that this is very illogical. For

my own part, I do not proscribe these luxuries unless there is evidence that their use has had something to do with the development of the morbid state. Usually I do not at all interfere with the use of coffee, and ask that a less quantity of alcoholic drinks and tobacco should be used. The worry and nervousness consequent upon the giving up of an established habit is worse for the patient, in my opinion, than the moderate use of the above-named articles.

Let me close this rather fragmentary lecture by calling your attention to something which is not wholly extra-medical. I allude to the care of your patients' spirits—their emotions and fancies, if you will. Never let *alarm* be one of your medicaments. If necessary, in order to bring about the reform of bad habits, lay the picture of consequences before your patient truthfully, but not in the language of exaggeration. Even in hysterical cases you need not be so frank as to hurt your patient's feelings: it will often do if her relatives know precisely what you think of the value of the symptoms. In cases of mental disorder pray do not forget that even very maniacal or melancholic patients attend to and remember all your words and actions, and will treasure any kind and careful behaviour of yours, as well as bitterly recall any unkind or hasty phrases and acts. As a general therapeutic rule, I would have you be as anxious to avoid wounding the sensibilities of your poor or wealthy patients as of injuring their tissues.

BUHL, HERING, AND FRIEDLÄNDER ON PHTHISIS, TUBERCULOSIS, AND INFLAMMATIONS OF THE LUNG.*

(Concluded from page 462.)

C. Friedländer's first work on our list is small but good. Its experiments are chiefly on the results of section of the vagus, recommended by Traube, and the inflammations of the lung thus set up have been studied by Friedländer microscopically. Simultaneously, some valuable observations on the epithelium of healthy lungs are made public. He points out with great force that the air-cells possess, not a mere broken and irregular lining of cells, but as Chrzonszczewsky and others agree, a continuous and regular epithelium. However he contradicts Buhl, who regarded this as like the epithelium of a lymph-vessel. These pale, polygonal flattened cells become granular and opaque (cloudy swelling) in the first stages of inflammation (*engouement*). The same occurred in the oedema of the lung, which our experimenter brought about by his nerve-sections; and may it be shown even in healthy lungs, if they

be saddened in serum or watery fluid before examination. Hence Friedländer concludes that even in inflammation this cloudy swelling of the alveolar epithelium is a passive process, brought about by the abundance of the fluid with which the cells are moistened; since, besides hyperæmia, there is a simultaneous exudation of blood-stained serum in the air-cells. The cloudy, swollen epithelial scales, which generally, and he thinks normally, contain more than one nucleus, almost entirely desquamate, and furnish one constituent of the alveolar exudation. In the further course of the inflammation, he observed a striking increase in the number of white blood-corpuscles in the smaller vessels of the air-cells. Next, numerous lymphoid corpuscles (*Zellen*) make their appearance in the interstitial connective tissue, and finally one sees even the lumen (interior) of the air-cells filled with them—indeed they then constitute the bulk of the solid contents. Cohnheim's theory of the migration of white blood-corpuscles offers a ready explanation of this. Friedländer very often observed small lymphoid corpuscles in the epithelial cells, and verified protoplasmic movements in them. It is true he has only made accurate observations as regards this point in animals. As regards pneumonia induced experimentally, Traube explains it by the passage of fluids from the mouth into the bronchi, through section of the vagus; but he believes that human catarrhal pneumonia admits a similar explanation. On this point Buhl and Friedländer contradict one another; the former, not believing in a true epithelium of the air-cells, denies that they can be affected with catarrh, and considers the secretion to be partly desquamated endothelium, and partly sucked in bronchial secretions. But we must consider Buhl's theoretical objections as swept away by Friedländer, who has afforded direct proofs that primary products of inflammation may occur in the air-cells (alveoli) in the form of lymphoid corpuscles (*Zellen*), as extravasated or extruded (*ausgewanderte*) white blood-corpuscles, quite independently of the bronchi, and irrespective of desquamated epithelium. Friedländer's observations also make an active participation of the epithelium in the increased cell-formation more than doubtful; and the desquamation sinks down into a purely passive act in most forms of inflammation, as even Buhl himself admits. Hence our objections to some of Buhl's views are confirmed.

Waldenburg regrets that Friedländer's second work on local tuberculosis is not equal in value to the one just noticed. He does not doubt the premises, or the theories with which Friedländer sets out; but he doubts his conclusions. Friedländer starts with Virchow's definition of tubercles, but amends this according to Langhans, Schüppel, Köster, and to some extent Rindfleisch and others, and finally throws overboard not only Virchow's doctrines, but almost the whole foundation of our ideas on tubercles. The mischief is wrought by the giant-cells, long since known under the name of *myéloplagues* (Robin), [see Rindfleisch's *Pathological Histology*, vol. i. p. 72, Dr. Baxter's transl. New Sydenham Society], and already described by Virchow as one of the constituents of tubercle, although not recognised by him any more than by many other eminent pathologists as really pathognomonic of tubercle; although Friedländer says that Langhaus deserves the credit of discovering that they are so, this author stating that 'Langhaus pointed out their peripheral situation, the equal size and radiating arrangement of their nuclei, characterising

* Inflammations of the Lung, Tuberculosis, and Consumption.—'Lungenentzündung, Tuberculose, und Schwind-sucht,' 12 Briefe an einen Freund. Von Professor Dr. Ludwig Buhl; 2 verbesserte Aufl. München. 1873: Rudolf Oldenbourg. 8vo, 169 pp.

Experimental and Microscopic Researches on Tuberculosis.—'Histologische und experimentale Studien über die Tuberculose.' Von Dr. Theodor Hering in Warschau. Mit 6 lithographirten Tafeln. Berlin: 1873. Hirschwald. 8vo, 112 pp.

Clinical Studies of Pulmonary Inflammations, with remarks on the Normal Epithelium of the Lungs.—'Untersuchungen über Lungenentzündung nebst Bemerkungen über das normale Lungen epithel.' Von Dr. Carl Friedländer. Berlin: 1873. Hirschwald.

On Localised Tuberculosis.—'Ueber locale Tuberculose.' Von Dr. C. Friedländer. Volkmann's *Sammlung*, no. 64. Leipzig: 1873.

them as formations *sui generis*.' Friedländer quite forgets that these giant-cells are by no means constant, whilst they have been found in other pathological formations, as for instance, in the neuroma nervi optici of Hering. Virchow's warnings are all disregarded. For certain histologists, the giant-cells remain specific elements of tubercle. 'All this,' says Waldenburg, 'reminds one sadly of the history of the so-called "tubercle-corpuscles" of an earlier date; history which seems repeating itself in another form.' Friedländer takes his stand on this, as we think, erroneous point of view; whilst admitting that he cannot always find giant-cells in tubercles, yet he declares these to be pathognomonic, and boldly calls all that contains them tubercle, denying the name to all in which they are wanting. In this sense, since Köster's discovery, we must reckon as tubercles the granulations of inflamed joints, including white swellings; or with Schüppel, the nodules (only seen by the microscope) in scrofulous, apparently purely hyperplastic, caseified lymphatic glands; next, as Friedländer discovered, nodules in scrofulous abscesses of the skin, in ulcers, and even in caries, still more in lupus, which is for the most part composed of small nodules of tubercles tightly pressed together, often confluent with giant-cells and epithelial elements—in short, the typical build of tubercle. Köster also vouches for the occurrence of miliary tubercles in caries and in ulcers, not merely in scrofulous sores, but in syphilitic chancres also; but he maintains their occurrence in unhealthy granulations to be consecutive or secondary, a view which seems highly probable. Friedländer, however, will have that they occur directly in healthy tissues. Hering showed before Friedländer that giant-cells occur in lupus, but did not consider them diagnostic of tubercle. However, the latter's observations are very interesting. He 'found, in the floor of a shallow ulcer, near the os uteri externum, a copious eruption (*sic*) of tubercles with giant-cells.' A second case was in a swelling, of the size of a hazel-nut, in the lobule of a lady's ear, who was otherwise healthy; it was almost entirely composed of tubercles. He found tubercles also in a rodent ulcer of the cheek, as well as in the walls of an epithelial cyst of the breast. He notes also 'the very interesting occurrence of tubercles in the stroma of a cancerous tumour, which had originated in the cicatrix of a rodent ulcer.' All these, with full faith in his giant-cells, he does not hesitate to call tubercles. Yet, faulty as we think this reasoning, and mistaken as may be his nomenclature, science has yet much to gain from Friedländer's investigations. His facts will remain, when the erroneous and puzzling terminology he adopts is quite exploded. Meanwhile, we protest against burdening our memories or our text-books with fresh definitions of tubercle. It were better to throw the old names overboard, and start afresh, than to give them dubious or double meanings. This much may be gained, even if Hering's view that giant-cells are cut lymphatics gain acceptance, that all new formations in which giant-cells occur will have this in common, that the new tissues take their origin from the lymphatic vessels. This will not, however, make them identical in nature, and, according to their locality, just like tubercles, they may or may not rejoice in giant-cells. All this is, of course, merely illustrative of an hypothesis. These questions must, however, be diligently investigated. Giant-cells especially must be closely looked after. Lang-

hans and Friedländer talk of 'a broad, strong mantle-like veil,' sometimes found enveloping the giant-cells; and the temptation to lift the veil is a strong one.

[The translator has thought it best to add only a few words of explanation to this very careful *résumé* of recent works. It seems to him that British anatomists and British pathologists have not been one whit behind either France or Germany, as regards the lung or lung-diseases. Compare especially the account of the normal structure of the lung, by Drs. H. Davies and Andrew Clark, in the former's work on *Diseases of the Heart and Lungs*; the works of Dr. Addison (New Sydenham Society); and the more recent publications of Drs. Wilson, Fox, Andrew Clark, Burdon Sanderson, H. G. Sutton, Waters, and many others, too numerous to mention.—*Rep.*]

W. BATHURST WOODMAN, M.D.

MAREY ON NEW EXPERIMENTS ON HUMAN LOCOMOTION.*

The brothers Weber supposed that, in human walking, the oscillation of the shifting leg was due to gravity, the foot performing a pendulum movement.

This view long prevailed in physiology, but it has been opposed, in recent years, by arguments of various kinds. It was M. Duchenne (of Boulogne) who first showed that the leg is not quite passive in its displacement, for certain muscular paralyses prevent the oscillation. M. Giraud-Teulon has attacked Weber's theory, by showing the mathematical errors on which it rests. Lastly, M. Carlet has, by experiments, determined the active rôle of certain muscles in the displacement of the leg in walking.

If gravity do not act alone in the oscillation of the leg, it becomes impossible to foresee what movement will result from its combination with the action of the muscles. M. Marey (*Comptes Rendus*) sought from the graphic method an experimental solution of this question.

When a body moves in a straight line, with velocities varying every instant, it is easy to record the nature of its movement, if the space past over be not very great. When the body is connected, by a rigid wire, with a style applied to a rotating blackened cylinder, the style being carried parallel to the axis of the cylinder, with variable velocities, will give sinuous curves, each element of which will indicate, by its inclination, the velocity of the movement which produced it.

But the movements in walking are too extensive to be inscribed according to their real size. To reduce them, without altering their characters, M. Marey used an apparatus of wheelwork. In this apparatus, each of the moving parts catching into another which had ten times more teeth, it followed that the movement communicated to the first axis must be reproduced by the second with a reduction of $\frac{1}{10}$; the third axis reduced the movement $\frac{1}{100}$, the fourth $\frac{1}{1000}$, etc.

If the foot be attached to a thread passing round a pulley borne by the first axis of the counter, while on the third axis is another pulley, the thread of which actuates the style, traces are obtained, in which the space traversed by the foot is reduced to a hundredth of its real extent.

Fig. 1 shows five traces got from paces of unequal velocity. A corresponds to the quickest walk, C to

* Abstract from *Comptes Rendus*.

the slowest. The abscissæ correspond to times, the ordinates to spaces passed over. A chronograph CH writing $\frac{1}{10}$ of a second, allows the measuring the elements of the curve, while the spaces passed over, reduced by the instrument, give one centimètre of trace for one metre of ground traversed.

1. *Velocity of Pace.* This is expressed by the general inclination of the curve, or by the relation between ordinates and abscissæ. As the different traces in the figure correspond to the same space (3.50 mètres) passed over in different times, it is the relation of the time taken to pass over it which will show the velocity of the different paces. If we count, with the aid of the chronograph, the time elapsing between the commencement of each curve and its point of arrival projected on the axis of x , we shall have the measure of this time. Thus, for the slow walk 1 to A we count 13 seconds;] for

the faster walk, 2 to B, $6\frac{1}{2}$; for the walk 5 to C, only 2 seconds.

2. *Alternation of Rest and Movement of the Foot.* Evidently, where the curves show a horizontal line, this corresponds to the application of foot to ground, and its immobility. The duration of these applications is seen to decrease as the pace is accelerated. The time during which the foot is displaced is shown by an oblique line, the projection of which on the ordinates grows as the pace is accelerated. This shows that the length of the step increases in proportion to the velocity of pace.

3. *Nature of the Foot's Movement of Translation.* This movement is represented almost throughout by a straight line; it is, then, uniform in nearly its whole duration. The inflexions of the line at beginning and end indicate that, in rapid paces especially, the movement of the foot commences and terminates

FIG. 1.

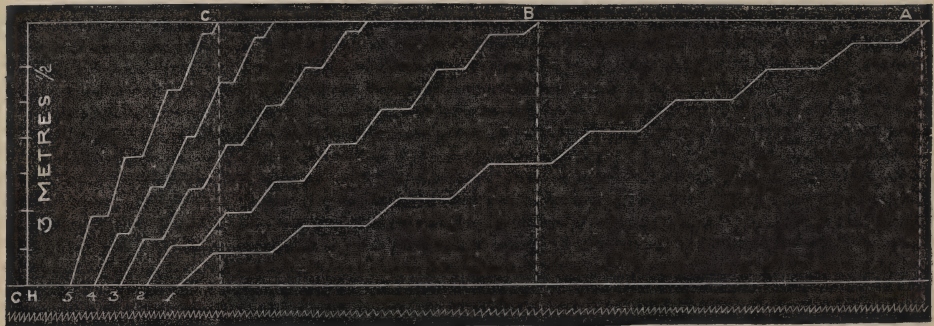
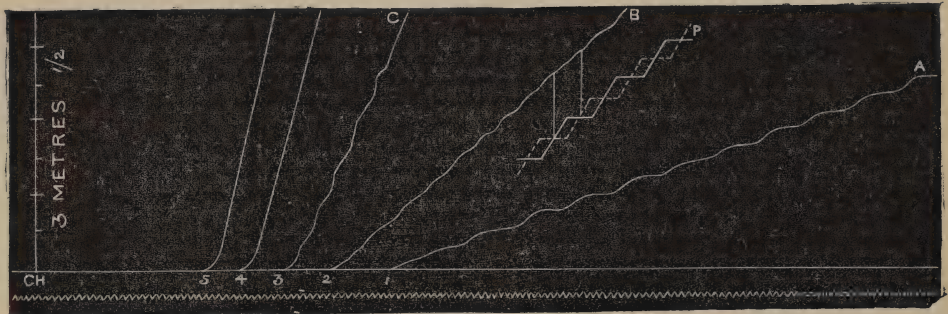


FIG. 2.



with short periods of variable velocity. It is seen how the oscillation of the leg is quite unlike that of a pendulum.

But it is not necessary to attribute exclusively to the action of the muscles of the leg this uniformity in transport of the foot. We know, in fact, that two distinct causes intervene in this transport:

1. The angular movement which the leg executes about the pelvis;
2. The horizontal transport of the pelvis itself; that is to say, of the point of suspension of the leg while it oscillates.

We may understand how, by the combination of these two influences, the movement of the foot tends to uniformity. This will occur if the minima of velocity of the first kind of movement correspond to the maxima of the second. It thus became very interesting to determine what is the movement of translation of the trunk in different paces.

The above-described apparatus served for this. A cord attached to the waist transmitted the movement of transport of the trunk. From various paces the following figures were obtained (Fig. 2), the analysis of which gives some interesting results.

The undulations are much greater in the cases of very slow walk than in those of a more rapid one. Thus the movement of translation of the body is ununiformed by its velocity. The inverse effect occurs in the vertical oscillations of the body, which increase in proportion to the velocity of progression and the length of the step.

The number of jerks (*saccades*) is double that of the movements of a single foot in Fig. 1. This is readily understood, since the two feet, repeating the same acts, come by turns to impress on the body a new impulsion.

To explain this action M. Marey has traced, parallel to the line 2, the curves P of the movements

of the right foot and the left foot. These curves (the one a dotted the other a plain line) are easily recognised as similar to the line 2 B, Fig. 1. Lastly, observing the superposition of the different parts of these curves with the undulations of the curves of translation, it is seen that the body receives a surplus of velocity about the middle of application of each foot. This fact accords with results of experiments formerly published by him.

M. Marey adds, in closing, that one of the most important features of these studies is the notion which they give of the variability of the movement of translation of the body in walking or running.

M. Marey intends in another note to show the application which may be deduced from these studies for the better utilisation of the work of animate motors.

ALEX. B. MACDOWALL.

PATHOLOGY.

MAGNAN AND MIERZEJEWSKY ON LESIONS OF THE VENTRICULAR WALLS IN GENERAL PARALYSIS.—MM. Magnan and Mierzejewsky, struck with the lesions of the membranes and cortical substance which they had observed in previous investigations upon the pathology of general paralysis, have still more closely examined the lesions of the surface of the brain, and conclude that these alterations should be regarded as the anatomical cause of the malady; in fact, agreeing with Bayle, who regarded it as a chronic meningitis; with Calmeil, who designated the affection chronic diffused periencephalitis; and with Parchappe, who terms it general cortical cerebritis. The condition of the ependyma had not escaped the attention of other authors, who have pointed out the granular condition of the fourth and lateral ventricles, not only in this affection but also in chronic hydrocephalus, chronic alcoholism, senile dementia, softening, etc. The intimate relation, however, of the ventricular lesions to those of the surface of the brain had not been established. It is the association of these, the authors observe, that constitutes the essential characters of general paralysis—*l'encephalite interstitielle diffuse généralisée*. Nine cases (six males and three females) of general paralysis, studied more particularly from the point of view of the ventricular lesions, form the basis of the present communication. Of the women, one was also ataxic, the others epileptic. In five of the males the posterior columns of the spinal cord had undergone degeneration. In all nine, the walls of the ventricles were the seat of granulations, varying in volume and number. They had the form of small rounded, greyish, gelatinous eminences like grains of semolina. They were more numerous in the posterior portion of the floor of the third ventricle, giving to this part somewhat the aspect of a cat's tongue. The ependyma was thickened by these granulations. Sections through these showed greyish bands extending into adjacent structures.

Microscopically examined, these granulations were seen to consist of connective tissue, true fibromata, the source of which was the reticular layer of the ependyma. This, as the result of irritation, becomes the seat of an exuberant proliferation, budding and raising the epithelial layer, which yields to the pressure, gives passage to the connective tissue, whence result the numerous papillæ of the surface.

One of these minute fibromata divided vertically shows a band of closely reticulated tissue on the surface with scanty slender long nuclei, forming a kind of shell, or hull, from the inner surface of which are given off numerous fibres passing inwards. The fibrous band that encloses the tumour is continuous with the reticulated layer of the ependyma, and divides into two layers, which enclose the papillæ. Where these papillæ occur in the neighbourhood of a commissure or canal, e.g. the aquæductus Silvii, they obliterate the cavity.

The reticular layer of the ependyma, the principal seat of the chronic irritation, not only sends its budding papillæ outwards towards the surface, but also sends fibrous roots internally into the neuroglia of the nerve-tissue. The nuclear proliferation of their connection is most abundant in the vicinity of vessels.

The same diffused chronic inflammation is found also in the spinal cord. The chronic irritation of the peripheral aspect of the cerebrum and its ventricular cavities, diffused extensively in all directions, demonstrate that general paralysis is essentially a diffused interstitial encephalitis, and that, if these characters are more pronounced in some parts than in others, it is that it finds in these parts the more favourable elements for chronic inflammation, viz., the cellular tissue and abundant vascularity.

[In acknowledging the value of the above contribution to pathological science, we confess that it is possible that in England we have of late overlooked somewhat the part that is taken by the membranes in the pathology of general paralysis, and that, in looking to lesions of the vessels and neuroglia for its morbid conditions, we have not included the whole of its pathological history. It is only fair, however, to remind our readers that the existence of these papillæ in the ventricles has often been recorded by British observers; even before the days of microscopical research it was noticed as 'miliary meningitis.'—*Rep.*]

W. B. KESTIVEN.

RICHEL ON APHASIA.—From an instructive paper on aphasia, in the *Revue des Deux Mondes*, by M. Ch. Richet, we take the following remarks.

It is probable that, between the organ of thought and the vocal organ, there is a third, the organ of speech (*parole*); it is the lesion of this which constitutes aphasia. Certain authors, however, have held that aphasia does not exist; that the case is sometimes that of a loss of memory, sometimes that of destruction of the intellect. It is fitting that we should examine these two objections (though the problems relate rather to psychology than to physiology).

In the memorable discussion which took place in the Academy of Medicine, M. Piorry affirmed that aphasia was merely *verbal amnesia*; and so it was useless to make the faculty of language something special. It appears, however, that memory itself is not a faculty which can be distinctly defined. One cannot conceive a thinking being who has no memory; it is the basis of all our actions, and, above all, of our ideas; whenever the mind thinks it makes use of anterior thoughts, and cannot separate itself from them. We identify ourselves, so to speak, with the notions we have acquired, and to separate the memory from the intellect can only be an analytic process, excellent for study, but impossible to accomplish in reality. It might be said, then, that there are different memories, applying to all the objects that

we know, but that there is not a single memory. We see, indeed, that nothing is more capricious than memory. It is a common fact that each individual, according to his aptitude, retains certain things much more easily than others. One can recall verse, who is unable to retain prose; another will have the memory of figures, another, that of places; and yet we should not make, for figures, places, verse or prose, a special faculty. It is quite otherwise with language, and if language be a memory, it is a memory so special, and has reached such a development in the life of individuals and the history of humanity, that it does not seem legitimate to confound it with other memories. For the rest, we find, from a study of aphasia, that it is produced specially; the aphasic play at chess and at cards, are interested in their affairs, understand them, discuss them, after their own manner, by multiplied forms of gesture, and a mimic language which they vary extensively. It is of little consequence if you call aphasia verbal amnesia; it would be sufficient to recognise that the verbal memory is a particular faculty, capable of being injured while the other faculties remain intact. But we will not even make this concession to the opinion of M. Piorry. Do we not see that the aphasic person who incessantly repeats *cousin*, and cannot say either *cou* or *sisi* separately, has lost something else than memory? The aphasic woman who said '*Bonjour, monsieur*,' every second, could never say '*Monsieur, bonjour*'; yet she retained the memory of the two words.

It is not necessary, indeed, to believe that all the faculties of the intellect are continually submitted to the will. There is a certain amount of *automatism*, more or less similar to what the physiologists of our age have called *reflex action*. We may, from the theoretical point of view, consider the nervous system as constituted of a sensitive cell, into which enters a sensitive nerve, and which is connected with a motor cell, whence issues a motor nerve. When the sensitive nerve is excited, by pinching or the like, the excitation is transmitted to the motor cell which makes a muscle contract, by means of the motor nerve. In this case will, intelligence, consciousness have no part in the production of the motion, it is a fatal, unreflecting action. . . . It is by reflex action that all those automatic and involuntary actions can be produced, that form three-fourths of human life. Thus when we take a walk we may think of anything else. Our intellect is not distracted by the movements we make, nor occupied with willing to walk. We are in this respect veritable automata; the step we take provokes a second step, and reflection does not act. M. Onimus has rightly compared language to the automatic functions of walking, of dancing, of playing on instruments. Certain observations of aphasia are very interesting from this point of view. A patient to whom some one had said 'How does that do?' replied, 'It does very well.' A few seconds afterwards he could not repeat this phrase. In such cases the patients speak quickly, as if they were afraid of forgetting.

From these examples we see that there are in language various elements; the memory of words, the arrangement of phrases, and that automatic part which permits of our speaking without effort. There is a fourth element which has considerable importance; I mean the intellect. It is impossible to regard aphasia as a total disturbance of the intellect; that is not destroyed when the faculty of language is abolished. A musician, having become aphasic, may

write the notes of an air which he has heard sung. It is true, he may not be able to write a single syllable, yet he will write the music as if he were quite without disease. Can any maintain that the intellect of the man is destroyed?

Still, it must be admitted that the intellect, in the aphasic, is often gravely affected. Professor Rostan could no longer comprehend the *Entretiens littéraires* of Lamartine, and Lordat suffered all his life from the lesion of his intellectual region. From having been an orator and improvisator of the first order, he became, after his temporary aphasia, incapable of speaking in public. He read his lectures, and could no longer improvise. Nearly all the aphasic are weak-minded; they have ideas more or less infantile; the merest trifles make them laugh or cry. Material concerns, their meals, and their sleep, interest them before anything.

PICOT ON THE ACTION OF WATER INJECTED INTO THE VEINS, WITH REFERENCE TO URÆMIA.—Traube, seeking to explain the phenomena of poisoning called uræmic, attributed them to the fluidity of the blood, and the great tension of the aortic system, producing œdema and anæmia of the brain. M. Picot has recently (*Comptes Rendus*, July 6) described to the Paris Academy some new experiments on this subject. They were made on rabbits and dogs.

The following are his conclusions.

1. Injection of water into the jugular vein, in a dose of one-thirtieth to one-fiftieth of the weight of the body, kills rabbits.

2. It is necessary with these animals to increase the dose to one-tenth, if the injection be made by the external saphenic vein.

3. Doses of water, up to one-eighth of the weight of the body, injected either into the peritoneum or into the veins, will not kill dogs; at one-fifth, death occurred from hæmorrhagic rupture, but in none of the animals experimented with, where death was produced, was there observed anything similar to the phenomena of uræmia.

4. Water injected into the blood (as Richardson has already observed) acts on the red corpuscles, altering their structure, and in all probability, rendering them unfit for gaseous exchanges. The absence of encephalic lesions is against the idea of death by the nervous system.

5. It is probable that in animals submitted to injections into the jugular, death occurs from a profound difficulty in respiration, occasioned by the sudden and prolonged entrance, into the pulmonary system, of blood charged with too great a proportion of water.

6. If we consider that a dog in twenty-four hours excretes only twenty-two cubic centimètres of urine per kilogramme of its weight, and that, in the experiments there was injected as much as 100 or 125 cubic centimètres of water per kilogramme, one can understand how difficult it is to suppose that the pathogenic cause of uræmia is the exaltation of intravascular pressure, under the influence of suppression of urine, leading to œdema and anæmia of the brain.

7. The doctrine of Traube, accordingly, does not appear to be the right expression of the pathological phenomena.

ALEX. B. MACDOWALL.

CAZENEUVE AND DAREMBERG ON THE CONTENTS OF SPERMATIC CYSTS.—In the July-August

number (p. 447) of *Robin's Journal de l'Anatomie et de la Physiologie* appears a note by the two above-named authors 'On the Nature of the Liquid contained in Spermatic Cysts.' The observations were made upon the contents of three cysts which had been punctured in La Charité. In the sediment separated by filtration numerous spermatozoa were discovered, some of which retained their vitality for twelve hours after the fluid had been drawn off. The reaction of the liquid was feebly alkaline.

The two most important facts elicited by the analysis of the filtrate were: 1. The presence of a considerable quantity of chloride of sodium—a salt of which only the most infinitesimal traces are present in normal spermatic fluid; 2. The absence, on the other hand, of phosphates—spermatic fluid, containing, as a rule, a proportion of phosphate of magnesia.

J. C. GALTON.

SURGERY.

KLEINSCHMIDT ON THE TREATMENT OF SNAKE-BITES WITH STRONG LIQUOR AMMONIÆ.—The *Berliner Klinische Wochenschrift*, for June 15, 1874, no. 24, contains the report of a case of adder-bite thus treated. The patient was a boy, aged nine, who had been bitten the day before he was seen by Dr. Kleinschmidt, whilst gathering fruit. The bite was said to be on the middle finger of the right hand. When seen, he had a staring look, his face was covered with cold sweat, and the whole of his right arm was enormously swollen; the skin was very tense and livid, and so tender that he screamed at the least movement. On measurement, the upper arm measured 30 centimètres (12 inches), and the forearm 32 centimètres (12½ inches), whilst the measurements of the left upper arm and forearm were 16 and 15 centimètres (6½ and 6 inches) only. The swelling extended also to the right chest and side, which were covered with a rash resembling scarlatina. The axillary glands were swollen. Although the bite could not be seen, the middle finger and the back of the hand were the seat of bullæ. No excision or cauterisation of the wound was to be thought of under these circumstances. Leeches were therefore ordered, as these had proved of service in another less severe case of adder-bite seen eight days before. Liquor ammoniæ was given in solution, and a purge; also ice, to check vomiting, which was almost continuous. Next day he was worse; had passed a very bad night, had vomited five times, and the arm was still more swollen, so that the upper arm was 32 centimètres, and the lower 34 centimètres (12½ and 13½ inches). There was more swelling of the whole right side, and of the scrotum also. His pulse was small and quick (120), his temperature 39.9° C. (103.8° Fahr.) and there was an expression of extreme anguish on his face. Much troubled by the danger of the case, the doctor ordered fresh leeches, and the ammonia to be taken hourly, but seeing on his return home the report of a case treated by ammonia subcutaneously injected, in no. 28 of the *Berliner Klinische Wochenschrift* for 1873, he seized his Pravaz's syringe, returned to the house, and injected a syringe-full of a solution of 1 of strong liquor ammoniæ to 4 of water, near the axilla. The boy roared for half an hour, but by evening all vomiting had ceased, there was no more swelling, and the anxious look had

vanished. In the evening, as the arm was still painful, some incisions were made with a pointed bistoury; much greenish-yellow serum exuded from these openings. Next day the swelling was much less, the boy looked cheerful, and his appetite returned. In fact all bad symptoms had vanished, though some eight or ten days more were required for recovery. [Dr. Kleinschmidt, commenting very fairly on his own case, remarks that, as only four per cent. of such bites are fatal in Germany, he will not assert that this treatment saved the boy's life; but he cannot doubt that immediate relief was gained from the subcutaneous injection of the ammonia-solution. In this the reporter thinks his readers must agree, although some part of the relief was probably due to the incisions.—*Rep.*]

W. BATHURST WOODMAN, M.D.

FORGET ON RANULA. — *L'Union Médicale* of June 25 and 27, contains a paper by M. Forget upon foreign bodies in Wharton's duct, and their connection with ranula, which was read at the Surgical Society. M. Forget deals critically with two papers bearing on the subject, the one by Dr. Claudot, the other by Dr. Ferrier.

M. Claudot's consists of two parts. In the first he narrates various cases of ranula, and concludes that they differ in their origin, their seat, and their nature. Hence, he classifies them into

1. Mucous cysts (dilatations of the muciparous follicles).
2. Salivary cysts (distensions of the salivary ducts).
3. Serous cysts (Fleischman's bursa).
4. Dermoid cysts (closed cavities of new formation).

M. Forget, passing over the earlier parts of the essay, takes exception to the serous cysts which are said to have their origin in Fleischman's bursa. M. Claudot gives no proof of the anatomical existence of such a bursa. He only says that in 1842 Fleischman believed he had discovered one in the linguo-maxillary furrow, and that he there fixed the seat of ranula. But, unfortunately, the description Fleischman himself gave of it showed that it was nothing but the lax cellular tissue which all anatomists have recognised in that situation. Neither does Jobert (De Lamballe), who follows Fleischman, give any anatomical proof of the existence of the bursa. According to him the direction and shape of the serous cyst itself indicate the situation and direction of the bursa, which has been its original point of departure. The tumour, he says, becomes prominent at the side of the tongue. It is never situated in the central line, because of the resistance of the thick muscular plane there formed by the genio-glossus, the genio-hyoid, and the digastric muscles; it tends, therefore, to place itself at the sides, and to insinuate itself between the muscles and the submaxillary gland; it may develop itself on both sides, and may become prominent at the same time both in the neck and in the mouth.

Now, says M. Forget, it is incontestable that sublingual tumours which offer these clinical features form the great majority of what are commonly called ranulas; must we then conclude with Jobert, not merely that they occupy a closed cavity formed at the expense of the laminated tissue, but even that they arise in a pre-existing natural cavity, which was discovered by Fleischman, and rediscovered by M. Tillaux. It must rest with anatomists to decide who

are right; but at present the balance of authority is against Fleischman. M. Tillaux says the bursa is not always found. Well then, it has probably no very important physiological use; and this leads us to ask whether, when it exists, it is not merely accidental or abnormal? If it had a physiological use it would be constant.

M. Tillaux has striven to show that the accumulation of saliva in this cavity, from a communication with Wharton's duct, gives rise to cases of acute ranula. But the proof is defective, while on the other hand M. Dolbeau has cited cases of acute ranula arising spontaneously, whose sudden appearance could not be explained upon the theory suggested by M. Tillaux; and the author has himself reported a case of the same kind which could not be explained in this manner. There is, therefore, need for further investigation before the point can be considered settled.

The second part of M. Claudot's essay is occupied with lesions of the salivary ducts, produced by foreign bodies in their interior. Of these foreign bodies some are introduced from without; others, such as salivary calculi, have their origin within.

A few examples are given of foreign bodies introduced from without. The first is that of a shoemaker, who had a painful swelling in the region of the submaxillary gland, with ulcerations at the orifice of Wharton's duct. A probe was passed, but no calculus or other foreign body could be felt. Three months later the patient complained of pricking pain under the tongue. The surgeon examined the floor of the mouth, and drew out a pig's bristle, such as the man used in his trade. He speedily recovered.

The next case is that of a soldier, who had a fluctuating tumour the size of a pigeon's egg, beneath and to the outer side of the tongue, in the region of the submaxillary gland.

There was also a second almond-shaped swelling of which the narrow end corresponded to the orifice of Wharton's duct. M. Claudot thought at first that these swellings were probably connected with a concretion in the salivary ducts. However, after making a close examination, he came to the conclusion that there was no foreign body present. After using palliative treatment for a week with little effect, he slit up the orifice, and the bistoury struck a small, rough body, which was drawn out, and proved to be a fragment of an ear of corn, upon which the salts of the saliva had formed a concretion. The cure was rapid and complete.

A third case is that of M. P. who, after having supped upon fish, awoke in the night with sharp pain and swelling in the region of the submaxillary gland. Leeches were applied, and some relief given. Between 1837 and 1842 the patient suffered two sharp attacks similar to the first. All this time the swelling continued; the pain got worse and worse, the tongue deviated, and mastication was impeded till at length M. P. could only take fluid food. It was not till 1842 that the surgeon probed Wharton's duct, and detected a calculus, which he proposed to remove on the morrow. After this probing the patient felt a pricking pain under the tongue, and, placing himself before a looking-glass, he observed a sharp-pointed stone protruding, which by the aid of a large pin he succeeded in extracting for himself. The concretion was cone-shaped, and was formed around a fish-bone.

Though such cases are comparatively rare in the

human subject they are said to be common in horses and other domestic animals. Immediate removal is the essential point in the treatment, otherwise a false passage may be the result. The following case treated by M. Ferrier illustrates this.

A patient, R., had a tumour on the level of the lower jaw, which had been growing for two years. Six months before his admission to the hospital this began to press on the tongue, while it increased also on the outer side; and there was a whitish, fetid discharge on the level of the frænum. A month later a smooth white stone of conical shape came away. The base was rough, as if the calculus had been broken off from a larger concretion, which remained behind. The patient got somewhat better, but as the symptoms returned and it was evident that there was still some concretion in the salivary passages, and that the gland was inflamed, M. Ferrier (wrongly, as M. Forget thinks) made an incision on the outside of the neck, as if he had been going to tie the lingual artery, and dissected out the submaxillary gland. No concretions were found in the gland-tissue, which was only inflamed. A few days later caustic was introduced into the wound, and subsequently caustic arrows were inserted. When the eschar separated, a fistulous track was felt, and the fetid discharge continued. At length, after the patient had suffered much, the fistula was examined with the finger, and a hard substance was felt. The fistula was dilated, and a calculus removed. The fistula then speedily healed, and in two months the patient was well.

M. Forget condemns the treatment adopted in this case, and says that the second portion of the calculus ought to have been removed from the mouth like the first, and that the submaxillary gland should have been left entire.

W. FAIRLIE CLARKE.

TOXICOLOGY.

BERGERON AND L'HÔTE ON A CASE OF LEAD-POISONING.—The authors record a case, occurring in the department of the Seine-et-Marne, of the poisoning of twenty-six persons. These were supposed to be affected with biliary typhoid fever; but two died, and examination proved lead-poisoning. It was found that the drainage-pipes into the reservoir supplying the water the sufferers had drank of, was a tube of lead about one yard in length, which had been laid nearly twenty years. The water from this pipe behaved as a solution of a salt of lead; and the cause of poisoning was doubtless the slow absorption of the lead, as chloride dissolved in chloride of sodium.

PAGET HIGGS, D.Sc.

JACOBS ON POISONING BY COAL-GAS.—Dr. Jacobs, of Cologne, who is a medical officer of health, publishes in the *Berliner Klinische Wochenschrift* for July 6, 1874 (no. 27), three cases of poisoning by coal-gas. He thinks that there are no cases on record (except perhaps casual notices in the newspapers), but those of Tourdes and Schumacher (see Dr. H. Eulenburg, *Die Lehre von den schädlichen und giftigen Gasen*, p. 165-69), and one in the *Annales d'Hygiène et de Médecine légale*. [In this, however, he is mistaken, as Sonnenschein says that the cases known are exceedingly numerous (*Handbuch der gerichtlichen Chemie*, p. 294), and the reporter finds references to other cases in the New Sydenham Society's *Year-Book* for 1859 (pp. 385 and 467), and

reference to a paper by Dr. Aldis (founded on experiments on rats), in the *Med. Chir. Transactions*, vol. xlv. pp. 99 and 137. An abstract of Schumacher's cases will be found in the New Sydenham Society's *Year-Book* for 1862, p. 468. But this does not diminish the interest of these cases, more particularly as those attacked were of different ages.] On February 14, 1870, a married couple named Mathar, with a daughter aged seven, were found in their beds between 6 and 7 A.M. without consciousness or any sign of life, in a cellar at a place called Eupen. The man was forty-seven, the woman forty-six years of age. All three had been healthy. It was found that the man had played cards in this cellar with some friends till after midnight. A lamp was still burning on the table, which (as he afterwards explained), he had forgotten to extinguish; having gone to sleep very soon after going to bed, as did his wife and child. A strong smell of gas was perceptible, indeed his friends had remarked it on going home, and it was found that the main gas-pipe in the street had a large leak, and from this the gas escaped through a drain into the cellar of a house fifty paces off, and from this into the one where these people lived and slept. It must be noticed here that the cold weather from February 6 to 14 was unusually severe, and this had hindered the escape of the gas into the street. The attempts at resuscitation were successful, and received legal recognition. The poisoned persons exhibited the recognised symptoms of asphyxia, and paralysis of the heart. As regards their recovery, it is to be noticed that trismus and tetanus lasted eighteen hours in the girl, twenty-four hours in the man, and thirty-six hours in the woman. Speech and consciousness returned in the girl after twenty-four, in the man after thirty, in the woman after forty-eight hours. They all exhibited a great inclination to sleep for many days, and suffered from constipation and retention of urine, requiring clysters and catheterism. The earthy colour of the skin was remarkably shown by all three, particularly in the woman. She exhibited also, at a later date, peculiar trophic changes in the skin and epidermoid structures, consisting of œdema, yellowish-brown coloration of the skin, thickening, dryness, and desquamation of the epithelium, swelling and stiffness of the right knee-joint, and numerous spots of gangrene. On the left side of her seat there was a bed-sore as large as the palm of the hand, the same on both heels; and the skin over both trochanters sloughed, in spite of all the care of the nurses. The emaciation, lassitude, and weakness, were such that it was four months before the woman could leave her bed for an hour or two, and now, after three years, she has scarcely regained her former strength. The man, too, even now, is a little weak-minded. The relation of pulse to temperature is worthy of note. At first the pulse in both man and woman was lowered, whilst the axillary temperature was raised. The child, however, had her pulse quickened, and her temperature elevated simultaneously. The woman had also horrible pain in her left leg, so that she had no rest either day or night. She described it as an unendurable burning, drawing, pinching, tearing pain, attacking the thigh, knee, and foot, but missing the tibial portion of the leg. Opium, chloral-hydrate, morphia internally and subcutaneously, quinine in large and small doses, and iron, all gave but slight and transitory relief.

Dr. Jacobs appends the following remarks. Coal-gas is thus seen to affect the blood in its passage

through the lungs, so as to render it unfit to carry on vital processes. Death is therefore not a mere act of suffocation, but just as definite a method of poisoning as that by strychnine, nicotine, atropia, or opium. The carbonic oxide of coal-gas (which is the only essential ingredient in fatal cases) possesses an irresistible property of robbing the blood of its atmospheric oxygen, and putting itself in its place. But this affects not only the central organs, but even the skin, as shown by the peculiar coloration, œdema, desquamation, gangrene, etc. Similar alterations of skin are also met with in central nervous diseases, e.g., chronic desquamative myelitis. It might be thought that the smell would irritate the nose and give warning; but this case shows the opposite. All soon fell off to sleep, and lost consciousness. So Dr. Carnet's experiments with animals teach us. He experimented on a rabbit, two pigeons, and a greenfinch, with carbonic oxide. In half an hour the three first were insensible, the greenfinch dead, as well as a rat which had crawled into the chamber. The insensibility was preceded by muscular weakness, and tottering gait. This stage has, therefore been justly called the stage of stupefaction. Giddiness, headache, nausea, and inclination to vomit, or actual vomiting, generally precede stupefaction (compare Schumacher's cases, in Henke's *Zeitschrift*, 1862, p. 40—see reference above) but the present case shows that this is not invariable. Even when roused to the danger, there may be no power to escape. The fact that the gas does not irritate the nose, lungs, etc., arises in a great degree from the fact of its large percentage of carbonic oxide, a gas which irritates none of the sensitive nerves—being invisible, tasteless, odourless, etc. It begins its insidious and fatal operation in the lungs. Trismus and tetanus were present in our cases, as in those reported in the *Oesterr. Zeitschrift für prakt. Heilkunde*, 1862, no. 49. Convulsions may have preceded these (so-called stage of convulsions), but the position in bed, and the absence of contusions seem to negative this. Tourdes' case was fatal without previous convulsions (Tourdes, *Relat. Méd. des Asphyx. occasion. à Strassbourg par le gas de l'éclairage*, 1841, p. 47). It has been propounded that 'the frequency of the pulse is a consequence of the elevation of temperature.' In the three cases related above, the pulse could scarcely be felt. It was so rapid in the child that it could not be counted, whilst the axillary temperature was 39.7°C. (103.46° Fahr.): the pulse and temperature were thus both high. But in the man and woman the pulse was slower than normal, whilst the woman's temperature was 40°C. (104° Fahr.) and the man's 38.5°C. (101.3° Fahr.). We might ascribe a pulse-depressing power, as regards adults, to the gas, as Hagenbach does to the poison of abdominal typhus. But this is seen at the onset of many diseases (pneumonia, cerebral pressure, &c.), whilst in children the pulse is usually quickened at first. Both in the man and woman the pulse was quickened afterwards. It was not true, however, that the pulse-frequency bore any definite relation to the duration of the high temperature. The fact of the lamp continuing to burn, without explosion, is also noteworthy. Death may also occur when the taps are turned so as to extinguish the flame, but not to prevent escape. Two servants of the Prince of Waldeck, at Deutz, were found dead in bed from this cause. The gas was not shut off at the meter, and one of the taps was not properly turned off in the room in which they slept.

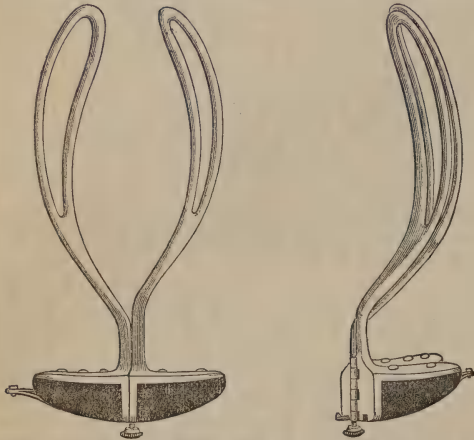
[As regards the last case, it seems to the reporter more probable that the gas was *blown out*, after having been turned down low. He thinks that the poisonous action of hydrogen sulphide must not be forgotten, as regards ordinary coal-gas, though the blood-spectra (not mentioned here) would be very different (see Preyer, *Die Blutkrystalle*, Jena, 1871). Dr. Aldis's rats had convulsions; it does not appear that the gas was examined as to its chemical constitution.—*Rep.*]

W. BATHURST WOODMAN, M.D.

NEW INVENTIONS.

ON CERTAIN IMPROVEMENTS IN THE HINGED SHORT FORCEPS.* By FRANCIS VACHER.

In my paper descriptive of, and remarking upon, a new form of midwifery forceps, issued last year, I stated that, though convinced the principle on which my instrument was constructed was sound, I could not pronounce it a perfect short forceps. Indeed, in the course of the first delivery it accomplished,



one defect, viz, the position of the button commanding the steel snap, became apparent, and since then two other flaws in the original design have discovered themselves, one, the instrument's extreme shortness, and the other, its want of some modification which would enable the operator to unlock and withdraw the blades without previously returning them into the hollow of the sacrum. These three imperfections I have, with the kind assistance of Messrs. Weiss and Son, whom I personally consulted on the subject, been enabled to correct. In what manner will be seen at a glance by comparing the accompanying cut with the illustration to my former paper.

In the first place, the catch which locks the blades when *in situ* is controlled from the end of the half of the handle attached to the upper or outer blade instead of from the front of the half the handle belonging to the lower blade, so that with the new instrument there is no possibility of the operator involuntarily unlocking it by the pressure of the palm of his hand during traction.

Secondly, inasmuch as this forceps is intended for

effecting delivery of the head when in the pelvic cavity, no less than when it has in great part passed through the outlet, I have found it necessary to increase its length by removing the clams a little further from the handle by the introduction of strong shanks an inch and a quarter in length.

Thirdly, it having been pointed out to me that, should delivery prove impracticable after traction had been sufficiently long tried, it would be an advantage to be able to separate the blades, and remove them right and left in the ordinary way, I have had the hinge rivet fitted with a head to allow of its being readily drawn.

It will be observed also that the black wood handle previously figured chequered now appears plain, as I intended it should in the first instance, having found by experience how very troublesome it is to keep clean handles of any instruments mounted in chequered wood.

I may only add that the hinged forceps, as now re-submitted to the notice of the profession, while obviously more useful than the pattern at first planned, is so little increased in size and weight that it is still, I believe, the smallest, lightest, and most portable short forceps devised.

REVIEWS.

Hygiene in its Relation to Therapeutics. By ALFRED L. CARROLL, M.D. Pp. 37. New York: Turner and Mignard.

This short paper, read before the New York Medical Journal Association in 1869, is evidently the result of much labour, and deserves to be read with careful attention. The author considers that hygienic measures are not only valuable in preventing disease, but have a much greater share in removing it than is generally assigned to them. The diseases which can be treated by drugs alone form but a very small class, consisting of certain cases of local disease, poisoning, and mechanical obstruction. Those which yield to hygienic measures alone form a much larger class than is commonly supposed, including self-limiting diseases, functional derangements, and deviations from the normal standard of nutrition. The largest class of all, however, including many chronic diseases of the circulatory, respiratory, and nervous systems, yields only to a combination of drugs and hygienic agents. These agents are alimentation, air, temperature, exercise, bathing, electrical influence, sunlight, etc. Alimentation in disease is most important, for in all organic diseases an essential part is played by tissue-starvation. The muscles may be starved by want of nitrogen, the fats by deficiency of carbon, the brain by absence of phosphorus, and the blood by withholding salts of lime, potash, soda, iron, and magnesia; although the other tissues may be amply supplied with the nutriment requisite for them, one may be suffering from want. In trying to supply nourishment, the first object to be kept in view is the general nutrition of all the tissues, and the second is the especial nutrition of the starved or over-gorged ones. It is not sufficient, however, merely to give nutriment; regard must also be had to the power of assimilation, for, if this be deficient, the patient may starve on four hearty meals a day. The comparative powers of gastric and intestinal digestion must, therefore, be taken into consideration, for sometimes the stomach

* An Appendix to 'Remarks on a New Midwifery Forceps,' *Liverpool and Manchester Medical and Surgical Reports*, 1873.

may be able to digest when the intestines cannot, and *vice versa*. 'Thus, for instance, we may have a case wherein respiratory food is called for, and yet the alkaline intestinal digestive function may be inadequate, while the stomach is still in working order. Here, and in all cases where emaciation and innutrition are caused by excessive oxidation of albuminous matter, the ingestion of gelatin will be found useful, since it offers us respiratory materials digestible in the stomach.' (For some interesting experiments by Voit on the use of gelatin as food, *vide* LONDON MEDICAL RECORD, vol. i. p. 367). 'In the special nutrition of tissues, the deficient elements should be ascertained, and then administered; or substances containing them in large proportion should be selected as food. Thus, where nervous power is deficient, hypophosphites may be given, and meats which are rich in phosphates, or still better, fish, should enter largely into the regimen. Meats and milk contain iron, and thus should form a chief portion of the diet in anæmic conditions. Useful indications of the proper articles of food are often afforded by the desires of the patient. As the needs of the solids or fluids are generally expressed by the sensations of hunger or thirst, so specific wants of certain tissues are frequently shown by a craving for a certain kind of food. In winter we have an instinctive liking for fatty substances which are repugnant to us in summer, as, per contra, we fancy in hot weather acidulated drinks and non-respiratory substances from which we are inclined to abstain in the winter months. In disease, within certain limits, a strong desire for a particular article of diet may be regarded as the still small voice of some suffering tissue urging its wants above those of its fellows, though of course due allowance must be made for the perversions of appetite which occur in many forms of disease.' Sometimes the opposite treatment of withholding certain elements may be useful as, *e.g.*, in the rheumatic diathesis, where lactic acid is in excess, and vegetables containing starch and sugar should be to a great extent avoided. Where there is a tendency to excessive secretion of mucus, substances liable to undergo lactic fermentation should be to a great extent withdrawn. The other hygienic agents are treated more briefly than alimentation. The author recommends an open fire-place and an inlet for pure air at the upper part of the room as the best practicable means of ventilation, and fully opened doors and windows when the season permits. He considers that constant humidity, by diminishing the exhalation from the body, and probably also through absorption from without, increases nutrition, while it lessens innervation. He draws attention to the fact that *cold dry* air, through its non-conducting property, acts in some sort as a conservator of animal heat, while *hot dry* air on the other hand is to a certain extent a cooling agent, owing to the rapidity with which evaporation of the perspiration occurs. When the air is moist it has an opposite action; for *cold moist* air, being a good conductor, is a speedy refrigerant, while *hot moist* air, by preventing evaporation, augments the bodily heat. This is important in regard to the distinction between vapour and hot-air baths, which are sometimes prescribed indifferently by the practitioner, but the latter of which can be borne much longer than the former. Very dry air dries and cools the lungs rapidly, and therefore, when stoves are employed to warm rooms, some water ought to be evaporated. In regard to climate, the author recommends that 'a

tendency to visceral engorgements, or to hæmorrhagic troubles, should be met by a warm, humid, and not too elevated a locality; scrofulous, dropsical, or diarrhœal disorders, and generally those accompanied by excessive mucous secretion, call for warmth and dryness; many nervous maladies will be benefited by a temperate climate, combined with moisture. The well-known effects of dry hot climates in causing derangement of the liver and bowels sufficiently indicate the opposite conditions to be sought for their relief. The influence of climate with regard to temperature alone may be generally stated thus. Heat tends to increase the activity of nutrition; but at the same time the amount of caloric which must be carried off by transpiration induces, by calling an excess of blood to the surface, a sluggishness of the digestive functions and rapid exhaustion. Owing to the abundance of perspiration, all the secretions are diminished with the exception of bile and semen, and these are on the contrary increased in hot climates. The fact that the skin may be made to act vicariously for the kidneys points to the value of hot dry climates, either natural or artificial (as the hot-air bath) in some renal disorders, if not otherwise contra-indicated. Cold, on the other hand, diminishes the cutaneous action, drives the blood from the surface to internal organs, renders the circulation sluggish, and increases the secretions generally.' Where excessive oxidation is going on, and the nutritive resources must be husbanded, rest is indicated. Under other circumstances, exercise in moderation is even more important in disease than in health; but violent gymnastic exercises are frequently injurious, and cardiac disturbance is very prevalent among acrobats. Bathing and electricity are briefly touched upon, and the free admission of sunlight to the rooms of the sick and convalescent is strongly recommended in nearly all cases, except those of ophthalmic disease, or where acute cerebral or meningeal attacks forbid it. Unless too intense, or too long continued, it acts, according to Dr. Hammond, as a most healthful stimulant, both to the nervous and the physical systems. The delirium and weakness which are not seldom met with in convalescents kept in darkness disappear like magic when the rays of the sun are allowed to enter the chamber, and wounds sometimes appear to heal with greater rapidity when the light is allowed to reach them, than when they are kept constantly covered.

T. LAUDER BRUNTON, M.D.

The Essentials of Materia Medica and Therapeutics.

By ALFRED BARING GARROD, M.D., F.R.S., etc. Fourth edition. Revised and edited under the supervision of the Author, by E. BUCHANAN BAXTER, M.D., etc. London: Longmans & Co. 1874.

The rapidity with which former editions of this work have been sold clearly indicates the high esteem in which it is held by the medical public, and affords the best possible proof that it has well supplied a widely felt want. The absence of all information regarding the physiological action of medicines in previous editions, however, has been a serious defect in the book, and has detracted considerably from its value. This fault has now been remedied, and the present edition contains an account of the physiological action of the most important remedies. The preface leads us to believe that this part has been added by Dr. Buchanan Baxter, who has lately been appointed successor to Dr. Garrod in the chair of Materia Medica in King's College. The chief

drugs of whose action an account is given are phosphorus, iodine, hydrocyanic acid, arsenic, iron, mercury, alcohol, ether, nitrite of amyl, chloral, croton-chloral, nitrous oxide, carbolic acid, aconitia, the alkaloids of opium, Calabar bean, eucalyptol, conia, quinia, strychnia, gelseminum, condurango, atropia, digitalis, camphor, veratria, veratroidia, and viridia. The descriptions of their action are very brief, but they are at the same time very clear and accurate. One is tempted occasionally to wish for a little more detail, but this could hardly have been given without materially increasing the size of the book, and the brevity and conciseness are in thorough keeping with its general character. The author has evidently taken great pains not only to acquaint himself with recent researches on the action of the remedies he describes, but also to select the most probable accounts where authorities are doubtful or contradictory, and he has succeeded in increasing the utility and value of his work, great though these already were.

T. LAUDER BRUNTON, M.D.

On the Past, Present, and Future of Therapeutics.

By ROBERT FARQUHARSON, M.D., M.R.C.P.
London : Smith, Elder, and Co., 1874.

This introductory lecture, delivered at the opening of the course of materia medica in St. Mary's Hospital, contains a brief sketch of the development of therapeutics, and gives a most hopeful view of its future progress. Some remarks on the present method of teaching materia medica are very good, and must have been received by the students with rapturous applause. The lecturer sympathises with the hardship they endure in being obliged during their materia medica course to listen to and learn a great many things, which they will afterwards promptly throw overboard as being entirely useless. To lessen their labours, he proposes the adoption of Harvey and Davidson's suggestion that students should not be made to 'get up' all the details concerning 900 drugs, many of which are hardly ever used, but that their attention should rather be concentrated in mastering thoroughly a selected number of the most important ones. Dr. Farquharson also makes some sensible observations on the period of their curriculum at which students in London attend materia medica; and his views on this subject are well worthy of attention. T. L. BRUNTON, M.D.

MISCELLANY.

THE Francis-Joseph University, newly instituted at Agram, in Croatia, will be opened in October.

DR. NOTHNAGEL, professor in the medical faculty of the University of Freiburg, has accepted an invitation to the office of director of the hospital at Jena.

THE DEER DISEASE IN PRUSSIA.—The *Standard* of July 25 reports the outbreak of a murrain amongst the deer in the royal forest of Grunewald, which has swept away almost entire herds. From the name, milzbrand (spleen-gangrene), and the description given of the symptoms, which include suppurating carbuncles, fungous growths in the blood, etc., and the fact of its contagion being carried by flies, it appears to be identical with charbon, or malignant pustule. Professors Virchow and Liebreich have investigated the cases. The former says that simple burial is not enough to destroy infection, since the maggots hatched from the buried eggs will come to light, become flies, and spread the infection anew.

TRICHINOSIS.—This disease is reported to have attacked many persons in Nordhausen and the neighbouring villages, in consequence of their eating raw pork. In Nordhausen alone, forty-three persons were attacked.

PROFESSOR VON PITHA, of Vienna, has retired from his official duties after nearly fifty years of public service. The Emperor has conferred on him the Order of the Iron Crown of the second class.

NEW ACT ON APOTHECARIES.—This Act has lately been printed, having received the royal assent. The first section enacts that the Act shall be cited as the Apothecaries' Act Amendment Act (1874). The second section repeals those provisions of the Apothecaries' Act of 1815 which require any member of the Court of Examiners (or any of the five apothecaries to be appointed under the Act for examining-assistants to apothecaries) to be a member of the society of not less than ten years' standing. The same section repeals those provisions of the Act of 1815 which require candidates for examination for a certificate to practise as an apothecary to have served an apprenticeship of five years. The third section enables the society, with the sanction of the Privy Council, to form part of any conjoint examining board to be constituted under the provisions of the Medical Act of 1858. The fourth section provides for the society having power in certain cases to strike licentiates off their list. The fifth section saves any existing rights of women to be admitted to the examinations of the society. Independently of the power given to the society to form part of any conjoint examining board, the Act will therefore be found to effect the following important changes:—1. The society can for the future select their examiners from the whole medical profession, or from any scientific body instead (as formerly), from a very limited class of the members of the society. 2. Apprenticeship is no longer made a necessary condition required of candidates presenting themselves for examination for a certificate to practise as an apothecary. 3. The society can strike licentiates off their list on the same grounds as they can be struck off from the *Medical Register*. It may be observed, in conclusion, that no new rights are conferred upon women by the fifth section of the Act.

NOTICE.

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The First Volume, containing upwards of Two Thousand Articles abstracted and compiled by a staff of Fifty Hospital Surgeons and Physicians, is now ready, price 19s. 6d. Cloth Cases for binding the Numbers for the year 1873 are also ready, price 1s. 6d. each.

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Advertisements should be sent to the Office, 15 Waterloo Place S. W., before Twelve o'clock on Tuesday morning.

The London Medical Record.

WEDNESDAY, AUGUST 12, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

THE INTERNATIONAL SANITARY CONFERENCE IN VIENNA.*

(Continued from page 479.)

II. Quarantine against Cholera.

The following were the questions prepared regarding this subject.

12. Ought land-quarantine establishments to be instituted against cholera?

13. If so; (a) where? (b) at what time, and in what circumstances? (c) with what building and administrative arrangements? (d) by what means is cholera to be prevented from entering the country by other ways than through the quarantine establishments?

14. Should river-quarantine establishments be instituted against cholera?

15. If so; (the same questions as in no. 13).

16. Should sea-quarantine establishments be instituted or maintained against cholera?

17. If so; (as in no. 13).

18. What dispositions in regard to persons should be made with free intercourse and continuancy?

19. How long (in case observation or quarantine should have been determined on) ought healthy persons to be subjected to observation or special quarantine? and how long ought the sick to be detained in hospital?

20. Under what conditions, and according to what calculations, is the entrance of ships into quarantine to be reckoned?

21. What regulations with respect to (a) personal effects, (b) living animals, (c) merchandise (d) food, (e) means of conveyance (e.g., ships, wagons, &c.) ought to be permitted with regard to permissions of intercourse without previous disinfection or after disinfection has taken place?

22. What would be the means of disinfection in regard to (a) persons, (b) personal effects, (c) living animals, (d) merchandise, (e) means of transport?

The first of these questions (12) was very thoroughly discussed. The delegates from the oriental maritime countries, who had at command an abundant amount of experience, argued that land-quarantine is only fitted for thinly populated countries, and that perhaps it is only in the east that it can be carried out. The majority of the German, English, Italian, Norwegian, and Roumanian delegates, speaking with reference to the conditions of intercourse in Europe, expressed a decided opinion against the establishment of land-quarantines; while a minority would have it left to individual governments to institute land-quarantines in

their several countries according to their own judgment. The Conference finally arrived at the following conclusion. 'Considering that, since intercourse in the present day has made various advances and is steadily making progress, land-quarantine is impracticable, useless, and injurious to the interests of commerce and intercourse; the question whether land-quarantine institutions ought to be established, is answered in the negative.' With the negation of the principal question, the secondary questions (13) fell to the ground.

On the subject of sea-quarantine, a report was presented by a committee that had been appointed to examine the subject, consisting of Professor Hirsch, Dr. von Alber-Glanstätten, Dr. H. von Kapelle, Professor Semmola, and Dr. Seaton. The report was as follows.

Sea-quarantine can afford an effectual preservation against cholera in those seaports only which may be regarded as the special gates of exit for cholera in its spread towards Europe by the way of sea. These quarantines must be international institutions. When cholera has once passed beyond these points, quarantines are without value in the ports of the European continent, as travelling on land remains free, and deprives them of their value. Under these circumstances, in place of quarantine in European ports, there should be instituted a strict system of examination of every ship arriving from an infected locality. The regulations which the committee have drawn up with regard to the carrying out of this system of examination, with a view to existing maritime intercourse for the purpose of preventing the spread of cholera, recommend the establishment of a sanitary board, partly composed of medical men and partly of administrative officials, in every seaport open to intercourse, whenever cholera is threatened or has been introduced. This board shall receive official information as to ships coming from infected ports, as well as all ships which during the voyage have touched at infected ports, or communicated with infected ships, or on board of which cases of illness or death suspected to be from cholera have occurred (regarding which the captain and officers must be bound under penalty to give true information), and it shall then subject the crew and passengers to a careful medical examination with regard to the state of their health; such examination to comprise not only the individuals, but also their effects, the ship's cargo, and the ship itself. If no cases of illness have occurred on board, the ship is to be at once admitted to free *pratique*; if the contrary be the case, the bodies of those who have died from cholera are immediately to be taken on shore and buried, the patients taken to a hospital, and the remainder of the crew and passengers, under the supervision of the board, subjected to cleaning by means of baths containing freshly dissolved lime. At the same time, all the clothes which healthy persons have used during the voyage, and their other effects, are to be subjected to the disinfecting action of sulphurous acid; and the ship also, after the removal of all on board, shall be subjected in all its compartments to a similar disinfection. The goods disembarked from the ship are to be admitted at once to free *pratique*. If there be no accommodation for the sick on land, the ship, with the patients, the cargo, and the necessary complement of crew, must remain in an appointed place under observation, until the cases of cholera have ended either in recovery or

* From the *Allgemeine Wiener Medizinische Zeitung* and the *Allgemeine Medicinische Central-Zeitung*.

in death. The regulation includes also some special directions for the baths and means of disinfection.

In the general debate on the proposals of the committee, two opposite opinions were held; one being in favour of the continuance of the present sea-quarantine; the other in favour of its removal and of the introduction of a strict system of revision as proposed by the committee. The Portuguese delegate, Dr. de Souza-Martins, insisted on the great value of sea-quarantine in epidemics of cholera, and endeavoured to weaken the arguments which the committee had adduced in favour of its removal.—Dr. Orphanides also spoke in favour of sea-quarantine, and supported his opinions by his observations in Greece.—Dr. Miloslavich supported the quarantine system from a scientific point of view.—The Turkish, Egyptian, and French representatives also spoke in favour of sea-quarantine.—On the other side, the opponents of the system, Dr. Dickson, Dr. Kjerulf, Dr. Berlin, Dr. Schleisner, Dr. Semmola, and Dr. van Kapelle, adduced evidence from their respective countries to show the uselessness of sea-quarantine and the special advantage of a system of observation.—Dr. Hirsch, Dr. von Pettenkofer, Dr. Drasche, and Dr. von Sigmund showed, from the abundant experience at their disposal, that, however rigorously sea-quarantine might be carried out, it was not capable of warding off cholera.—The representatives of Switzerland and Luxemburg spoke in favour of the maintenance of quarantine.—Drs. Semmola, Kjerulf, and Polak expressed a strong opinion, which they supported by numerous facts, that sea-quarantine was injudicious.—Dr. Fauvel replied to them in a long speech, in which he specially referred to climatic differences and the local conditions consequent thereon. He proposed a motion, which was not agreed to, to refer the question again to the committee, and to add to it two of the opponents of quarantine.—The conference, however, adopted a proposal made by Dr. Semmola, to refer the subject to the committee for the special consideration of the opinions advanced by the opposition.

The following propositions, with regard to sea-quarantine, were finally adopted.

‘1. In seaports in which there are no quarantine institutions, as in those of the Red and Caspian Seas, a sanitary board shall be constituted, consisting of medical men and government officials, with a staff of assistants.—The number of members of the board belonging to each class is to be regulated according to the amount of shipping intercourse in each port; but, under all circumstances, it must be sufficient to ensure a speedy dealing with the ship and crew, as well as with the passengers. The chief of the sanitary board must keep himself in official communication with cholera-infected ports, which may come into contact, through intercourse by ships, with that to which he belongs.

‘2. Every ship arriving from an unsuspected port, which the captain shall have declared on oath neither to have touched at an infected port nor to have had direct communication with an infected vessel, and on board which no suspected or distinct cases of, or deaths from, cholera shall have occurred during the voyage, is to have free *pratique*.

‘3. All ships coming from infected or suspected ports, as well as ships which come from uninfected ports, but which during the voyage have touched at an infected place, or held communication with an infected ship, or on which, during the voyage, cases of illness or death suspected to be from cholera have

occurred, shall, on arrival, be subjected as soon as possible to a strict medical examination as to the state of health of their crew and passengers. The captain, ship's officers, and medical officer (when there is one) shall be bound to report to the examining physician any suspicious symptoms of illness on board which may have come to their knowledge. If the medical investigation show that no case of illness in any way suspicious exists among the crew and passengers, the ship, with all that it carries, is to be immediately admitted to free *pratique*.

‘4. The bodies of those who have died of cholera, as well as all cholera-patients found in a ship newly arrived, are to be taken on shore; the former must be immediately buried, the latter placed in a hospital always kept in readiness for their reception, or, when there is not one, in some house or barrack or isolated place, or in as isolated place as possible in the country. If any suspected cases of cholera or deaths have occurred during the voyage, or if suspected or decided cases of cholera, or bodies whose death is traceable with probability or certainty to cholera, be found on board a ship on its arrival in port, the crew and passengers, after the removal of the sick and dead, shall undergo a process of cleansing and disinfection under the supervision of the board.

‘5. At the same time, all the clothes worn by healthy individuals, or used by them during the voyage, as well as all their other effects, are to undergo a thorough disinfection in a room arranged for the purpose, under the strict control of the board. After disinfection has been carried out, the effects will be given back to their possessors, who in the meantime will have taken a cleansing bath, and they will then be perfectly free.

‘6. After the removal of all persons, except those absolutely necessary for the service of the ship, any vessel arriving under the conditions named in section 3 is to be subjected in all its compartments to a thorough disinfection.

‘7. The goods landed from the disinfected ship, even the rags and objects used by the cholera patients, after being properly disinfected, are to be considered innocuous.’

Dr. Fauvel brought under notice the evil consequences of overcrowding in emigrant and pilgrim ships, and urged the necessity of a remedy.—Dr. Seaton openly blamed the unhealthy arrangements adopted, especially by some English shipowners.—The Dutch representatives also spoke against the evil.—Dr. Bartoletti regarded the subject as so important, that he proposed that the decision on it should be deferred until the regulations on establishments for sea-quarantine were drawn up. This was agreed to.

A committee was appointed to discuss regulations for quarantine establishments in those countries which might erect them. The Dutch and Italian representatives declined to act on the committee, as it was not consistent with their views on the utility of sea-quarantine. The committee was finally appointed as follows:—Professor Hirsch (Germany), Dr. von Alber-Glanstätten (Austria), Dr. Seaton (England), Dr. Fauvel (France), and Dr. Bartoletti (Turkey). The following rules were drawn up by the committee and accepted by the Conference.

‘1. Vessels from infected ports must undergo observation, which, according to circumstances, may last from one to seven days. In the eastern ports of Europe and elsewhere, though only in certain excep-

tional cases, the surveillance may be prolonged to ten days.

'2. When the Board of Health have sufficient proof that during the voyage no case of cholera, or of any other suspected disease, has occurred on board, the observation is to last three to seven days, reckoned from the medical inspection. If, under these circumstances, the voyage have lasted at least seven days, the surveillance is to be limited to twenty-four hours, to give time for the examination and disinfection considered as necessary. In cases under this category the observation may be held on board as long as no case of cholera or suspicious circumstance occurs, and when the hygienic conditions of the ship allow it. In these cases, the unloading of the ship for disinfection is not necessary.

'3. When, during the passage or after the ship's arrival, cases of cholera or of other suspected disease occur, the surveillance for those who are not ill is to last seven full days, beginning from their isolation in a hospital or whatever place is assigned to them. The sick will be disembarked and properly attended to in a place separated from the persons under surveillance. The ship and all objects belonging to it are to undergo a thorough disinfection, after which persons obliged to remain on board will be subjected to surveillance for seven days.

'4. Vessels from suspected ports, that is, such as lie near places or ports where cholera prevails, and are in intercourse with them, may be subjected to observation lasting at most five days, provided that no suspicious case of disease have occurred on board.

'5. The quarantine of emigrant and pilgrim ships, and in general all vessels whose condition is deemed especially dangerous to the public health, shall be carried out under particular regulations, which the Board of Health will decide.

'6. When the conditions of a place do not allow the prescribed regulations to be carried out, the infected ship is to be despatched to the nearest hospital, after it has received all the assistance that its condition may require.

'7. Ships coming from infected ports which have touched at a port *en route*, and have left it without undergoing quarantine, will be treated as ships coming from an infected harbour.

'8. In cases of mere suspicion, the Sanitary Board may order special disinfection regulations.

'9. In ports where cholera is epidemic full quarantine is not to be kept, but means of disinfection are to be strictly applied.'

(To be continued.)

ON THE FORMATION OF INFLAMMABLE GASES IN THE STOMACH. BY DR. FRIEDRICH SCHULTZE, ASSISTANT-PHYSICIAN TO THE MEDICAL CLINIC IN HEIDELBERG.*

In the 38th, 39th, and 40th numbers of the *Berliner Klinische Wochenschrift*, for 1870, Dr. Popoff published a contribution from the practice of Dr. Botkin, of St. Petersburg, under the title of 'A Case of Contraction of the Pylorus, with Consecutive Dilatation of the Stomach, and Discharge of Inflammable Gases.' In that communication, he mentions an analysis made by Carius of the gases which the patient had discharged from the mouth by eructation;

and expresses his regret that he had not seen the copy of the 'Transactions of the Heidelberg Society of Natural History and Medicine,' in which the report on the analysis was given, and that therefore he could not arrive at a conclusion as to the nature of the disease of the stomach.

More recently, as appears from a brief notice of a meeting of the Society of the Medical Officers of the Charité Hospital in Berlin (*Berliner Klinische Wochenschrift*, no. 8, 1874), Frerichs has described a similar case as occurring in his hospital practice. It therefore seems right to give greater publicity to the history of the case, to which the analysis made by Carius had reference.

In the volume for 1865 of the *Heidelberg Year-Book of Literature*, part 2, p. 726, is the simple statement that Professor Friedrich made a communication regarding a patient who discharged inflammable gases; and following this is a communication from Professor Carius on butyric acid fermentation in the stomach of a patient. Professor Friedrich has never published his communication; the analyses made by Carius are alone given in the *Year-Book*; and I quote his own words, in order to give them greater publicity.

'The examination,' Professor Carius writes, 'which I made by desire of Professor Friedrich of the case communicated by him, was commenced with the analysis of the inflammable gases discharged through the mouth of the patient. They were collected there a few hours after the mid-day meal, at which time, according to the patient's statement, the development of the gases was most abundant. The patient held in his mouth a glass tube, which was connected by caoutchouc with a tube opening under water. The latter was previously filled with water, and closed by a stop-cock. When the patient perceived the presence of the gases, his nose was held and the stop-cock was opened, when the gases escaped quietly in such abundance that at one time 200, and a few minutes later 300, cubic centimetres were discharged.'

'The analysis was conducted according to Bunsen's method, and gave the following result.

| | Per cent. | Volume. |
|---------------------|-------------|---------|
| Carbonic acid . . . | 26'56 . . . | 28'45 |
| Hydrogen . . . | 32'30 . . . | 31'55 |
| Marsh-gas . . . | 0'34 . . . | 0'24 |
| Oxygen . . . | 7'36 . . . | 6'82 |
| Nitrogen . . . | 33'44 . . . | 32'94 |
| | 100'00 | 100'00 |

'Sulphuretted and phosphoretted hydrogen could not be found.

'Nitrogen and oxygen were present in the mixture of gases in nearly the same proportions as in atmospheric air. It might therefore be concluded that these had only been swallowed by the patient, or that they represented the atmospheric air in his mouth, especially as the slight loss of oxygen may be explained by its being more readily absorbed by water. The presence of marsh-gas is easily explained by the origin of the gaseous mixture: its presence in so small a quantity is of no importance. The important constituents of the gaseous mixture were then carbonic acid and hydrogen. I was struck with finding these in nearly equal volumes; and when it is remembered that carbonic acid is much more readily absorbed by water than hydrogen, the comparatively smaller quantity of the former is explained. In the formation of butyric acid by fermentation, carbonic acid and hydrogen are developed in equal volumes; and hence it appears probable that a

* *Berliner Klinische Wochenschrift*, July 6 and 13, 1874.

true butyric acid fermentation took place in the patient's stomach. In order to obtain further proof of this, I subjected to distillation the fluid portion of the matter recently vomited by the patient, which had an intensely sour reaction. In the distillate, which was very acid, butyric acid was found in abundance; from a portion of vomited matter discharged at one time, nearly five grammes of butyric acid were obtained. Along with the butyric acid, the distillate contained traces of its homologues, capronic acid, etc., but no acetic acid. The identity of the acid with butyric acid was determined by analysis, and by the behaviour of its barium salts. From what has been above communicated, there can be no doubt that butyric acid was really formed by fermentation in the patient's stomach. This seems also to have occurred in a second patient, observed by Professor Friedrich; at least, I found almost as considerable quantities of butyric acid in the matter vomited by this patient, who also discharged a large amount of gas.

'Butyric acid is formed by fermentation from sugar, starch, and similar materials; lactic acid is probably first formed, and in the presence of the protein substances undergoes decomposition. It is probable that lactic acid is decomposed in the same way in the stomach of a patient. The only difference that can be imagined to exist is that, in the artificial formation of butyric acid, it is not free lactic acid but a lactate that undergoes change, while there can be no question that it was free lactic acid that was decomposed in the patient's stomach.'

Carius then examined only those gases which were spontaneously discharged from the distended stomach, not the gases remaining in the stomach, which Popoff drew off by a stomach-pump, and then analysed. Both observers have attached too low a value to the carbonic acid, as they collected the gases under water and not under mercury; there is only this difference between them, that, while Carius found nearly equal volumes per cent. of carbonic acid and hydrogen, Popoff found a great preponderance of hydrogen. The last-named observer, however, in collecting the gases contained in the stomach over quicksilver, found the percentage of the two gases nearly the same.

They agree also in assuming the formation of butyric acid in the stomach, in finding that oxygen and nitrogen were present in nearly the same proportion as in atmospheric air, and in not finding any sulphuretted hydrogen; Carius, however, found small quantities of marsh-gas, while Popoff could discover no compound of carbon and hydrogen.

Before I proceed to describe the case of the patient who supplied the gases for the analysis made by Carius, I must mention, that in 1864, in the *Allgemeine Medizinische Centralzeitung*, Waldenburg described 'a peculiar kind of dyspepsia characterised by an abnormal development of gases, and rapidly cured by charcoal after a duration of three years.' These abnormal gases had the smell of addled eggs, were, according to the patient's statement, readily inflammable, and exploded with a visible bluish flame. The patient was much emaciated; his abdomen was excessively distended, the greatest protuberance being below the umbilical region; on percussion, the whole abdomen gave a loud and deeply resonant sound; no other abnormality could be detected. Three years previously, before the patient consulted Dr. Waldenburg, he had suffered much from flatulence, and afterwards, every day about three hours after each

meal, distension of both the upper and the lower parts of the abdomen set in, and subsided at first after the discharge of gases, and afterwards after vomiting. The vomited matter was very abundant, and contained, in a semi-digested state, almost the whole of the meat and drink previously taken, and also cryptogamic spores 'like torulæ.' Sarcinae were searched for once, but were not found.

Waldenburg thought that there was no deeply seated disease in this case, as the patient felt relatively well when his stomach was empty. His appetite was good, and nothing abnormal could be found beyond the distension of the abdomen. It may hence be well assumed that in this case, as well as in the following ones, distension of the stomach lay at the foundation, very probably with narrowing of the pylorus; and this view is supported by the large amount of the vomited matter and by the time at which the vomiting usually took place.

I come now to the cases observed by Friedrich, of which I will relate in detail only the first, as the analyses made by Carius have relation to it.

The patient was a mason, aged twenty-five, who, for a year before his admission to the Heidelberg Hospital, after having on several occasions suffered gastric distress, and having frequently vomited matter like coffee-grounds, was attacked with vomiting every fourth or fifth week. On one occasion, for two days in succession, he discharged by vomiting thirty cherry-stones, although he did not remember having eaten any cherries within seven weeks previously. Latterly, before his admission on January 27, 1865, the vomiting had occurred more frequently, often daily; but sometimes it would cease for some weeks. Before each act of vomiting he felt much distension of the abdomen; afterwards, there was a feeling of great relief. The appetite was good, he had no headache, his bowels had been constipated for two years, at last acting only at intervals varying from three to six days. In the last weeks he had become emaciated, and very weak.

On admission, he was somewhat emaciated; his extremities were cold; there was tenderness on pressure over the epigastrium; no solid tumour could be detected in the abdomen; the tympanic percussion-sound over the stomach appeared more extended than usual. When the patient lay on his back, there was observed a bulging, lying obliquely across the middle third of the abdomen, and extending into both hypochondriac regions; it yielded a clear tympanic percussion-sound, and was caused by the distended stomach. From time to time, spasmodic contractions of the stomach occurred, during which the outlines of the greater curvature were distinctly visible through the abdominal walls. On the sudden application and removal of pressure with the hands at the sides of the upper abdominal region, a squashing sound was distinctly heard, evidently dependent on the presence of fluid and gaseous matters in the distended stomach. The patient could also produce the same sound by shaking his abdomen.

The vomited matter was voided in large quantities; it was very sour, had an odour of yeast, and was of a greyish white colour; on standing, it separated into three layers. The lowest layer was of a whitish grey colour, and on microscopic examination was found to consist of sarcina-balls (large-celled and small-celled) and of torulæ, mostly arranged in the form of rosaries. The upper layer was derived from those parts of the food which were of low

specific gravity, and consisted chiefly of fat, starch, &c. The middle layer, which was the thickest, consisted of an opaque fluid containing very few solid elements, and having an intensely acid reaction. The urine was rendered very cloudy by heat, but again became quite clear on the addition of acetic acid. In other respects, the examination of the patient did not show any anomaly of the inner organs.

During his six months' stay in the hospital, from May 1865, it was ascertained that the gas discharged by eructation—which occurred especially just before the act of vomiting—was inflammable. If at this time a burning match were held before his mouth, the gas took fire with a slight crack, as when ordinary gas is lighted; and a bluish flame more than a foot long was seen proceeding from the mouth of the patient—a phenomenon which could be especially well seen in a dark room. On the other hand, the sour-tasting scanty eructation which generally followed the act of vomiting, did not, as a rule, consist of inflammable gases; it did so, however, on some occasions, and later on it was found that the gases discharged between two acts of vomiting on any one day were combustible. Even the bubbles of froth, which was formed in abundance on the surface of the vomited matter, were filled with combustible gases. On moving a burning match close over the bubbles, there was heard a rapid succession of slight detonations, like miniature fire-firing.

The vomiting occurred almost every day while the patient was under treatment, being especially frequent in the evening and at night. The quantity was often very large, amounting to as much as 4,300 cubic centimètres (more than nine pints).

All the remedies that were used, as well as the most careful regulation of the diet, were without result. Charcoal, which Waldenburg had given to his patient with benefit, had no effect that could be observed; and just as little good was obtained from carbolic acid (two teaspoonfuls in water three times daily of a solution of 1·2 parts of carbolic acid in 30 of distilled water), dilute sulphuric acid, or glycerine (in doses of four teaspoonfuls three times a day). During the use of the glycerine, however, the inflammable gases disappeared, and the amount of sarcinæ was much reduced, although there was still a considerable quantity of torulæ.

In spite of all the remedies that were employed (the application of the stomach-pump in dilatation was not then known) the patient became daily weaker and more miserable; the pain in the epigastrium increased, general wasting made steady progress, petechiæ appeared on the skin of the abdomen, and he died on September 14, 1865. A short time before his death he vomited dark brown tarry matter, and for a few days there was slight jaundice.

The principal fact ascertained on *post mortem* examination, which was made by Professor Friedrich, was extreme dilatation of the stomach. The organ occupied the position in which it had been observed during life; the mucous membrane was somewhat puffy, and was covered with a tough firm mucus. The pylorus felt, when examined from without, like a knobby tumour, about double the size of a nut. (During life, when emaciation was far advanced, a small nodulated tumour was felt in the neighbourhood of the pylorus.) The walls of the pylorus were thickened and hardened, and its lumen was reduced to the diameter of a quill; on cutting it through, the thickened walls presented all

the characteristics of the so-called benign hypertrophy, with predominant hyperplasia of the muscular structure. The stomach contained 5½ pints of a dark coloured fluid having an unpleasant sour smell, and on the surface of its mucous membrane in the neighbourhood of the pylorus were seen radiating cicatrices with elevations between them; recent lesions could not be detected. The only other appearances worthy of note were, a greatly atrophied liver, and numerous abscesses in the right lung, probably produced by the inspiration of particles of food.

It was thus evident that the patient had suffered at an earlier period from ulcer in the neighbourhood of the pylorus, and that the contraction of the cicatrix had given rise to stricture of the pylorus and all its consequences.

Friedrich's second case, which is mentioned by Professor Carius, was one of less marked gastric disorder in a chlorotic girl aged twenty, who from her seventeenth year had frequent attacks of heart-burn, and vomited after food daily, often for months together. Hæmatemesis was never observed; but the patient was troubled with frequent eructation having a nasty taste.

Objective examination showed, besides the signs of well-marked chlorosis, a greatly distended abdomen; there was much tenderness on pressure in the epigastric region, where also, on shaking the abdomen, a squashing sound could be distinctly heard. The vomited matter, often copious in quantity, had a smell of yeast, and separated, as in the other case, into three layers, the lowest of which contained abundant sarcinæ and torulæ. Eructation seldom occurred during the patient's stay of two months in hospital; it could not be ascertained whether the gases discharged were inflammable. Carius found, however, abundant quantities of butyric acid in the vomited matters.

It may be well assumed that in this case also the long-continuing gastric disorder had its origin in an ulcer of the stomach; there was evidently dilatation although only moderate.

A number of similar cases have come under clinical observation since 1864; in two, only, however, was the inflammability of the gases discharged by eructation ascertained, while the bubbles of froth on the surface of the vomited matters were frequently found to be capable of explosion on the application of heat. In all cases there was dilatation of the stomach, in which there was a history of round ulcer and consecutive cicatricial stricture of the pylorus. The patients generally felt relieved, after vomiting, of the feeling of gastric distension; and objective examination also then showed that there was a decrease of the epigastric enlargement, and of the squashing sound. But in a short time, generally after one, two, or three days, the former condition returned; the eructation again increased, and again vomiting relieved the distressing symptoms. In all cases, the vomited matter was abundant, and contained numerous sarcinæ and torulæ; all the other above-mentioned characters of the vomited matter were also present, so that I may well omit their description, which would be only a repetition of what has been already said.*

* In his communication made to the Heidelberg Medical Society, on June 24, 1865, Friedrich referred to the connection, in most cases, between the formation of combustible gas (hydrogen) under butyric acid fermentation in the stomach, and the occurrence of benign stricture of the pelvis and dilatation after the healing of ulcers, and demonstrated to the

I will only remark, in conclusion, regarding the influence of treatment, that in one of the more recent cases in which the discharge of inflammable gases from the stomach has been observed, the condition of the patient was relieved by the use of charcoal. Since the introduction of the use of the stomach-pump by Kussmaul, it has been used in recent years, and a decided result has been obtained by washing out the stomach with Vichy water, to which carboic acid has been added.

After the preceding article had been written, a new case came under observation in the hospital at Heidelberg, which thoroughly confirmed the observations made above, and also afforded some points of note in regard to the mode of death.

On June 17, 1874, a vine-dresser, aged twenty-five, was admitted; he was said to have suffered during five years from gastric disturbance. The first symptom was cardialgia, generally coming on after meals; he then had frequent rising of the stomach and heartburn. For a year he had violent pain in the region of the stomach, and vomiting, which for a quarter of a year had become more frequent; and during this time he discharged large dark-coloured masses from the stomach. His appetite was diminished, his bowels were constipated, and he had lost flesh and strength.

Objective examination discovered emaciation, strong pulsation in the epigastric region, slight distension and moderate tenderness of the epigastrium. There was no tumour. The stomach was moderately dilated.

During his stay in hospital, he discharged by vomiting, on several occasions, a quantity of chocolate-coloured matter, amounting to several quarts daily; it was frequently tinged with fresh blood, and on microscopic examination was found to contain sarcinae and torulae. During the nine days that he was in hospital, the patient was treated with tannin and opium; to relieve the severe attacks of cardialgia, morphia was injected subcutaneously, and bladders of ice were applied. His condition, however, remained on the whole unchanged, the vomiting continued; the inflammability of the gases discharged by eructation was not ascertained; and within a week after his admission he had several dark-coloured stools.

On the night of June 25, 26, after having had repeated attacks of vomiting and cardialgia during the day, he was seized with collapse and syncope. This passed off, but returned four hours afterwards, the body becoming much distended, and he died.

The clinical diagnosis was, round ulcer of the stomach; and the death appeared most probably due to perforation. The idea that there had been slow hæmorrhage was opposed by the fact that the temperature of the patient on the evening before his death was 98.6° Fahr., and by the suddenness of the death.

The necropsy was made by Professor Julius Arnold three-and-a-half hours after death. The stomach was enormously dilated, occupying the greatest part of the abdominal cavity. The diaphragm was pushed upwards, and the part of the great curvature nearest the pylorus reached almost as far as the symphysis pubis. It lay with its long diameter on the axis of the abdomen; the small curvature being somewhat

to the right of the middle line, and the large one lying to the left against the abdominal wall. The arteries and veins along the great and small curvatures were filled partly with blood, partly with air; and along with them were seen wider channels filled with air (lymphatics).

On puncture of the stomach there escaped a large quantity of gas, which burned with a clear blue flame about half a foot long. The gas in the duodenum and upper part of the small intestine was also inflammable; while that which escaped from the lower part of the ileum (which lay in the pelvis) and the colon extinguished flame.

Besides the combustible gases, the stomach contained a large quantity of dark tar-like fluid; its mucous membrane was remarkably swollen and thickened, had hyperæmic spots, and was covered with a slimy coating. At the pylorus there was a loss of substance, with a sharply defined edge and smooth base; above it, on the anterior wall, was a superficial cicatrix. Besides this, on the small curvature, about an inch from the pylorus, there was a recent superficial loss of substance. The lumen of the pylorus was much contracted. At the lower part of the œsophagus, immediately above the cardiac orifice, was an ulcer about the size of a two-thaler piece, with a very swollen edge and smooth base; it was remarkably deep. Above this was a small superficial loss of substance. Beyond an unusually anæmic state of the brain, nothing of importance was found elsewhere.

The death of the greatly weakened and anæmic patient was thus the result of the sudden distension of the stomach by the inflammable gases, which must have interfered with the respiratory movements, and have still further reduced the already defective flow of arterial blood to the brain, and thus led to fatal syncope. The gases must have entered the gastric vessels from the ulcerated parts, under the enormous pressure which they exercised within the stomach.

FRENCH AFFAIRS.

(From our Paris Correspondent.)

Ungracious as is my self-imposed task of censor of medical affairs in Paris, it is one of increasing usefulness; one, therefore, which I am increasingly moved to undertake, and which I hope you will allow me from time to time to pursue in my small way. It is true that the *Gazette Hebdomadaire* treats me with grandmotherly severity; that the *France Médicale* this week more angrily describes me as 'grincheux et mal léché'; but, on the other hand, the eminently Gallic tone of your journal saves you from the same censure, and I am content to bear it; although, from some inquiries which were made recently, I find that if I were absolutely to unveil myself, some of my excellent colleagues here would arrange for me a 'mauvais quart d'heure.' So our motto must be courage, discretion, and fidelity.

I have been away from Paris for a week, and have not watched the course of events very closely; but I do not see any considerable reason to regret it. After the conclusion of the absurd Bouillaud-Colin incident, by which the Academy became for weeks the subject of interminable disputes and discussions on questions concerning the movements of the heart, as to which everyone, except one or two doting old men, has perfectly made up his mind, there supervened a discussion on the propriety of injecting

meeting, in a dark room, the very remarkable phenomenon of the inflammability of the gases discharged by eructation. The clinical pupils during the session had also the opportunity of observing this rare phenomenon.

chloral into the veins, in lieu of giving it by the mouth. It is difficult to suppose that intravenous injection should have been treated so lightly as it was in this discussion; but of course the result was to arrive at the conclusion, that it is a method which is fraught with dangers, and must be reserved for great emergencies. Then, however, followed a perfectly characteristic shower of twaddle and amplifications. The usual disposition cropped up to treat the method of intravenous injection as a great French discovery; and Dr. Halford, of Melbourne, would have been surprised at the *naïveté* with which intravenous injection of ammonia as a treatment of snake-bite was discussed as a French invention of the most high novelty.

Two discoveries, however, which we have recently made, quite deserve the attention of your scientific readers. M. Gosselin, one of our surgical eminences, and a great friend of some of you English, has made a discovery which certainly ought not to escape your notice. You know, perhaps, that M. Lefort and some others of our younger hospital surgeons were so unpatriotic as to discover that the mortality after surgical operations in our hospitals was, and is, very much greater than in yours. As operative surgery is our *forte*, the accuracy of this disgusting observation was disputed as long as it could be, and is still kept carefully in the background, as our hospitals eschew medical statistics, and the elaborate vital analyses of the hospital population, which all your great hospitals publish, are here either not made or are suppressed. As, however, the facts were not to be disputed, they had to be explained; and the illustrious Velpeau hardly solved the difficulty by convincing himself that the French patients do not possess the 'chair chirurgicale'; and as they have not a surgical quality of flesh, it is, of course, the fault of the joint and not of the carver, if the results are not as satisfactory as might be desired. This conclusion, however, has not been universally accepted without a certain reserve, and it has followed that some adventurous spirits have been looking out for other causes adjuvant to the want of surgical quality in French flesh. (My poor compatriots! not even fit to be cut up!) M. Gosselin then believes he has found it, and it is important that you should know it, because it concerns you almost as much as it concerns us. M. Gosselin, then, has arrived at the conclusion that the cause of the excessive mortality in the French hospitals is, that *there is too much cleanliness* in the wards. This, you see, is a truly French thesis, and M. Gosselin defends it with suitable fire and ingenuity. You are always scrubbing the floors, he says to the sisters of the *salles*, sweeping down the walls, brushing the dust off the curtains, shaking the bed-clothes. Now all persons are agreed that this dust which you are incessantly removing is loaded with zymotic germs. *Let it lie*, therefore. So long as it reposes in peace it is at least harmless; when you fill the atmosphere with it, it flies hither and thither, settles upon wounds, touches upon the mucous membranes, and enters into the system of the patients by the mouth, the nostrils, the air-tubes, and the digestive passages. This is charming, and might be most amusing as satire on the dirty habits of our French hospital guardians, if it were not intended seriously, and if it did not come from a surgeon of serious character and great merit such as M. Gosselin. Your Pagets, Callenders, Holmes, and Bristowes have been preaching a gospel of cleanliness, as the means

of still further improving your excellent results after surgical operation, and the splendid results of Callender at St. Bartholomew's have attracted the attention of the whole of Europe, contrasting as they do with the remarkable success of Lister, at Edinburgh, who has also succeeded in obtaining an immunity from hospital diseases, and a magnificent vital statistic, such as have been hitherto unknown. And then comes M. Gosselin and, 'de cœur léger,' preaches a 'gospel of dirt.' Let the dirt lie, he says, it belongs to the dangerous classes; the less you move it, the less danger you incur. Call a truce with it; give it quiet lodgings, and it will not harm you and your patients. Is not this a true reflection of the causes of our political as well as of our scientific decadence? Let sleeping dogs lie; do not probe below the surface; believe what it is pleasant to believe; think yourselves the bravest, the wisest, the most generous of peoples; and when you have awaked to find yourselves outgeneralled, outfought, outwitted, last in the field and lowest in knowledge, rub your eyes and turn round again to mumble 'Nous sommes trahis,' and to murmur in your dreams, 'Nous aurons la revanche.'

But poor M. Gosselin's patients will never have their 'revanche' with him, at least in this world. If he smothers them in zymes, and powders the walls and the curtains of his *salles* with accumulated fevers and breeding hospital pests, they must suffer, and that uncomplainingly. So I am fain to complain on their behalf—to complain that any man should hardily at this date, and in the face of accumulated millions of facts, proclaim a gospel of dirt as the law of hospital life. And this, too, in France, where neglect of hospital hygiene and of personal cleanliness is already the curse of the wards and the main cause of the existing excess of mortality. I have hardly ever seen an Englishman, after he has been through the *service* of any one of our surgeons, without his expressing to him his horror at the revolting and wicked want of cleanliness; the nonchalance with which brushes, laden with lotions, are applied first to one sore and then to another, from chancrous to gangrenous ulcer, from gangrenous ulcer to simple sore; the carelessness with which instruments are used first for one patient and then for another, without first plunging them into boiling water; the still more disgusting carelessness with which a surgeon will pass his index finger into an abscess or a fistula, and presently, after rubbing it on a *dry* towel, into the mouth of the next patient. The basin and towels, with hot water and soap, which in every English ward stand on every table, and of which the surgeon and the nurse make liberal use, are here wanting. With you, the young dresser, or *interne*, knows well that if he were to use a surgical instrument for two successive patients, without meantime plunging it into boiling water, he would be held guilty of a crime. Here one sees these young men go from patient to patient, with probes and knives, contenting themselves with a hasty rub of the polluted instrument on their dirty aprons. It is so, likewise, with sponges and camel-hair brushes. It is to this and to the filthy closets, the greasy dressings, and the want of pure air and abundant water in the wards, that our hospital mortality is to be traced. It was thus that the American surgeons in their hospital during the siege saved their patients, while in our hospital at the Grand Hotel *every case of amputation died*. They worshipped cleanliness. Everything which came from a patient, or which had touched a patient,

was either burnt or plunged in boiling water. Everything was freshness, purity, cleanliness itself. The dressings were light and cleanly water-dressings. There were no greasy abominations thrust between the flaps, on the pretence that union by first intention could not be got, and therefore need not be tried after. You never saw bundles of filthy reeking charpie, impregnated with yellow grease, with decomposing blood and pus pulled out from a cavernous wound; the dressings were light, they were antiseptic, cleanly, and *frequently changed*. There is nothing more distressing to my mind, after having had some experience of English and American hospitals, than to go round the ward with one of our eminent French surgeons; to see him removing dressings reeking with filth, without sternly reproving his *internes* for allowing them to get into that poisonous state; to see him stuffing greasy charpie into wounds, and bandaging it there to putrefy and corrupt for twenty-four hours, instead of lightly bringing the surfaces together, which only ask to be allowed to unite, and dressing the wound as every other civilised nation does, with light and clean water- or carbolic-dressings, frequently changed; to see him use the same probe for a dozen wounds, the same brush for a dozen sores. It makes my heart ache for the patients; and it humiliates me, for I know that it is not from any inherent defect of earnestness or intelligence, that our surgical wards are the bywords of Europe, but because, in our vanity and ignorance of the world of science, we have gone on in the ways of our grandfathers. Talk to an average Frenchman about Liston and his introduction of water-dressings, and of union by first intention, and he will laugh at you, and tell you there is no such thing; that it has all been tried and failed; that he never heard of Liston, but Nélaton tried it, and could not succeed. Or a more erudite man will tell you that Liston only copied some Frenchman, who in the fifteenth century sprinkled a wound with a syringe, and that Liston and Lister (who were brothers, he believes) were very clever men, but deficient in science, and have not presented any memoirs on the subject which can compare with those of M. Guérin (who has got hold of the wrong end of Lister's stick, and thinks that to wrap a stinking wound in cotton-wool will suffice to heal it). No doubt M. Guérin's cotton-wool will save the patient from the worse horrors of ordinary French surgery, and is a point gained in his favour; but it is truly shocking—to return to the point from which I started—that, at a time when every sound observer knows that the first requisite in French hospitals is a more scrupulous observance of cleanliness, M. Gosselin should come forward to preach a 'gospel of dirt.'

MACLEOD ON THE ROYAL NAVAL LUNATIC ASYLUM AT YARMOUTH.

The report issued by Dr. Macleod is very creditable and complete, and speaks volumes for the advantages of a small over a large asylum, seeing that in the former a much better individual knowledge of the patients is acquired and greater personal attention is paid to them. The advantages and defects of the institution are brought freely forward, and in such a way that, whilst inviting criticism, they disarm hostile remarks. It is perhaps questionable whether a blue-book is the proper place for bringing

forward the particular effects of enemata, sedatives, etc., for the printing and the paper are done at the expense of the public, who neither understand nor care about such matters; and the most recently expressed opinion of the Medico-Psychological Association is, that these things are better left to the special province of strictly medical journals. Dr. Macleod has enlarged on the usual symptoms and treatment of various forms of insanity in a manner that shows him to be well acquainted with routine asylum treatment; but many of his statements might have been taken for granted, since they come within the scope of the most ordinary observation, e.g. the fact that paralytics 'require eight or nine changes of clothing during the day,' that 'men with paralysis of the insane get bed-sores,' etc. One method that he recommends of administering medicine in troublesome patients is, however, so questionable that we are compelled to dwell on it. Dr. Macleod says that 'when they refuse medicine it is given by the nasal or œsophageal tube.' Now why not employ subcutaneous injection? Most, if not all, sedatives can be given subcutaneously, and purgatives or emetics can be more easily placed on the tongue, and with better chance of action, than administered by the stomach-pump. Again, Dr. Macleod 'gives it as his opinion that' forced feeding (stomach-pump) in general paralysis 'only hastens the fatal termination.' Has any one denied this? Who would now-a-days dream of feeding a general paralytic forcibly? The capriciousness of their appetites is well understood, and a man who refuses food at a certain meal-time will most assuredly take it at some other. We have an ordinary routine for breakfast, dinner, and supper; but the insane are above routine, and should be allowed a little choice as to the times they prefer for filling their stomachs. Again as to the so-called bed-sores; what is the use of saying that 'a bed-sore arose, not from neglect, but from constitutional symptoms'? We give the establishment credit for not neglecting patients, but a little cotemporaneous reading would have made the author acquainted with the fact that 'local gangrenes' recur in the stage of paralytic dementia, quite unconnected with the question of their being free from excoriation by urine. *Qui s'excuse s'accuse*; and it does look as if Dr. Macleod were combating some unseen foe, and, by accounting in a certain way for some undesirable appearances, neglected to shield himself under a protection which already exists. In spite of all precautions, one suicide occurred from hanging. The medical appliances used seem to have been tolerably successful, but nothing is said of the employment of ice in the epileptoid convulsions of the final stage of general paralysis, whilst bromide of potassium is largely praised as a remedy for 'this distressing symptom.' Now it must be remembered that these epileptiform convulsions are never very long in duration, and are attended with marked congestion of the skin; and that universal experience has shown the efficacy of ice in relieving the symptoms, whilst potassic bromide requires a certain length of time for its operation, and has a directly congestive action on the skin. The convulsions of epilepsy and the epileptiform attacks of general paralytics differ in many respects, and before the same remedy is applied to them it must be shown that there is a *prima facie* probability that good may be expected. A correct view of therapeutics would lead to a directly opposite opinion as to the advantages of potassic bromide. That 'depraved habits are at times persistent and

troublesome' we quite allow ; but that 'black vomit before death' necessarily shows 'degenerations of the fluids and solids' we must demur to.

The appended tables of admissions, deaths, and recoveries have all the appearances of being carefully compiled.

MEDICINE.

DE LATOUR ON MEDICAL THERMOMETRY.—No. 82 of *L'Union Médicale* (July 9, 1874) contains an article on 'Defects in the Instruments and Methods employed to determine Animal Heat,' by Dr. Robert de Latour, with a description and woodcut of the thermometer employed by him for more than thirty years. He states that many practitioners are deterred from taking temperatures by the difficulty they find in reading the small figures on the stem of the ordinary pocket thermometer, and the equal difficulty of distinguishing the column of mercury from the glass. Nearly half an hour, he says, must be lost, whilst the mercury is rising to perhaps 20° C. (36° Fahr.) above the atmospheric temperature. If the doctor attempt to warm his thermometer at a candle, ten to one he breaks the instrument by the sudden expansion of the mercury. Meanwhile, valuable time is lost, for, though the pulse may be taken, respirations counted, and many questions asked, yet neither auscultation nor percussion, nor other modes of physical examination, can be conveniently practised whilst the temperature is being taken. These inconveniences, he thinks, are obviated by his own clinical thermometer, the peculiarities of which are as follows. It consists of a tube bent at a right angle, and so forming two branches—one of which is quite free and horizontal, terminating in an olive-shaped extremity for the axilla ; this branch measures $3\frac{3}{10}$ inches ; the other, 4 inches long, is attached to an ivory scale, with clearly marked divisions of degrees (C.) and tenths of a degree. This extremity terminates in a bulbous reservoir, for the sake of security against the sudden expansion of the quicksilver. This reservoir also serves to re-establish the continuity of the mercurial column when it has been accidentally broken, since it is only necessary to warm the instrument so as to drive some the mercury into this reservoir, and the column again becomes united. For the sake of legibility and portability, he graduates this scale from 34° C. (93.2° Fahr.) to 42° C. (107.6° Fahr.) only, and vindicates his rejection of higher degrees by affirming his disbelief in the occurrence of such temperatures, except in the death-agony, or as *post mortem* phenomena. He says he cannot boast of millions of observations like Wunderlich, but, on the other hand, his observations are personal (*i.e.*, not done by deputy), and he has never met with such temperatures in his practice. He affirms it to be almost an axiom in physiology that no animal can survive its blood being heated 5° C. (or 9° Fahr.) above its normal heat ; a result which he attributes chiefly to increased rapidity in the capillary circulation, whilst the large veins and right side of the heart are unable to keep pace ; hence increased pressure, stasis, and finally stoppage of the heart. As special recommendations of his thermometers, he says that they can be warmed with safety before use ; do not require more than a minute *in situ* ; are easily read ; the mercurial column, if broken, can be joined easily again ; and they themselves are not easily broken.

His first description was published in 1842, and subsequent ones in the *Revue Médicale*, *Union Médicale*, *Tribune Médicale*, etc. Lastly, he accounts for the want of appreciation shown by his countrymen, by the fact of the French origin of his invention. He anticipates that it will be warmly welcomed, if it should be reintroduced, some time hence, as a German discovery, since everything German is hailed with delight, and is sure to be both popular and efficient ! The lettering and explanations affixed to his scale are as follows :—

| Lettering. | Cent ^{de} . | Fahr. | Explanation. |
|------------|----------------------|--------|--|
| T.M. | 41.5° | 106.7° | Maximum temperature. |
| F.E. | 39.5° | 103.1° | Truly febrile temperatures. |
| F.S. | 38° | 100.4° | Temperatures symptomatic of local lesions. |
| T.N. | 36.5° | 97.7° | Normal temperature. |

We are promised a continuation of this paper.

[As regards the instrument figured and described by Dr. De Latour, the reporter thinks there are two positive merits, viz., the olive-shaped extremity for the axilla, and the large reservoir at the other end. It would seem, too, that priority must be accorded to Dr. De Latour for the idea of a curved instrument, which the reporter has not found so convenient in practice as the straight tube, even in the modified form of Dr. Aitken's and Mr. Casella's instrument. It does not appear from the description that this French thermometer has any index, although there seems no reason why it should not be so furnished. The index, and the use of a reading-glass or pocket-lens, appear to the reporter to obviate many of the objections to the smaller clinical thermometers—although larger instruments undoubtedly allow the scale to be more finely divided, and there is rather less risk of errors in graduation. He feels it only right, however, to strongly protest against the idea of one minute being long enough with any of our present instruments, however delicate. This short period of observation doubtless explains Dr. De Latour's scepticism as to high temperatures in non-fatal cases. These, however, do not now rest on the testimony of one observer, however eminent, since Dr. Wilson Fox's cases have been supported by the publication of others. Dr. De Latour fixes his normal point too low—an error which probably arises from taking observations on convalescent, rather than on truly healthy people. The reporter believes the testimony for 37° C. (98.6° Fahr.), as the average normal point, to be overwhelming.—*Rep.*]

W. BATHURST WOODMAN, M.D.

HAMMOND ON THE CAUSE OF HYDROPHOBIA.—The *Fancier's Gazette* of July 25, 1874, contains an extract from an article on this subject in the *New York Weekly Tribune*.

Mr. Wm. M'Cormick, who was a butcher, was bitten by a small dog on the hand. The wound seemed to be only a scratch, and was not further noticed. About a month later, Mr. M'Cormick felt a peculiar creeping sensation, coming up his back and spreading over his shoulders and back of his neck. He also felt faint, and was provided with a glass of water. On taking the glass in his hand and attempting to drink, his teeth closed on its edge, his lips became purple, and his face presented the appearance of a person asphyxiated by choking. Powerful narcotics were administered, but without effect, and he died the next day. The day after,

Drs. W. A. Hammond, Meredith Clymer, Hudden, and others, met to discuss the case, and make a *post mortem* examination. Dr. Hammond was of opinion that the disease was a true nervous lesion, of either the brain, spinal cord, medulla oblongata, great sympathetic system, or of all of them. Dr. Clymer contended that there was clearly blood-poisoning.

On examining the brain, the membranes were found to be intensely injected, the small vessels being distended to their utmost, and small points of a scarlet colour being everywhere observed. The sinuses were full of blood. The entire surface of the brain was engorged. Dr. Hammond remarked that, whatever might be the seat of the disease, the inflammation had extended to the brain. This had produced the coma that at times overcame the patient. The general opinion of the assembled physicians was that the seat of the disease was in the medulla oblongata.

To Dr. William A. Hammond was entrusted the work of ascertaining whether any structural changes hitherto undiscovered would reveal a true lesion. The medulla oblongata had been carefully removed and placed in alcohol. The pneumogastric nerve was exposed on the left side of the neck, and a piece of it carefully cut out and placed in another bottle of alcohol. The medulla was cleaned of every portion of membranous substance, and then immersed in a weak solution of bichromate of potash.

Four days later, Dr. Hammond began his observations. The first section was made through the spinal accessory nerves, where the filaments pass from the medulla. The reason that this part was first brought under observation was, that the greater force of the disease seemed to be expended on the muscles of the throat, larynx and pharynx. The first spasms were those of the constrictor muscles of the throat. This was brought on by M'Cormick's attempting to drink a glass of water. The attending physicians, at the *post mortem* examination, were astonished at the healthy appearance of the larynx and pharynx internally, while the congestion and external inflammation amounted almost to engorgement. When this section was properly adjusted, the cause of this condition of the throat was evident. At different points in the white and grey matter of the medulla there were distinctly seen, when highly magnified, black spots of irregular shape and various sizes, indicative of extravasated blood. At the origin of the spinal accessory nerves this appearance became more marked, and the evidence that the part was the seat of the disease was as positive as anything could be. Other sections were made, and the same appearances were plainly to be observed. A section through the medulla oblongata at the origin of the filaments of the pneumogastric nerve exhibited, when highly magnified, the same dark-irregular spots. In this section, as in that including the spinal accessory nerves, the greatest diseased action was evident about the origin of the nerve-filaments, though the spots could also be plainly discerned in the grey and white matter of the medulla oblongata.

J. LOCKHART CLARKE, M.D.

M'CREA ON STRAPPING THE CHEST IN PHTHISIS. Dr. M'Crea (*Lancet*, July 18, 1874) describes a method of strapping the chest in phthisis, employed by him at the Belfast Dispensary. The use of other remedies is at the same time not interfered with. The plasters used in strapping are able to bear the

strain of walking and talking, so that gentle exercise and conversation are not forbidden. Dr. M'Crea has principally used emplastrum roborans spread on swan's down. The sheet, which is half a yard wide, is to be cut into transverse strips. Each strip is eighteen inches long. The plasters should be only very slightly heated. The first strip runs up the back in the space between the spinal column and the posterior border of the scapula on the affected side, its starting point being well below the level of the inferior angle of the scapula. It is to be applied gradually and deliberately, every portion being well rubbed in before the next portion is brought into contact with the skin. It is to be carried over the shoulder and down the front of the chest. In rounding the shoulder it is to be pulled tight, and held so while it is being, bit by bit, brought into contact with the front of the chest, the chest just at this period being in the act of strong expiration. The next strip, which is horizontal, commences at the spine, crosses the posterior end of the first strip, passes under the axilla, and on towards the sternum. It is also to be applied deliberately and with friction. As it is rounding the chest, it is to be pulled tight, the patient at the same time making a forced expiration. Other strips are to be applied in a similar manner—vertically and horizontally, until it is judged that a proper grasp of the chest has been obtained. The scapula is to be avoided as much as possible. Some of the horizontal strips should cross the sternum, and some the spine. A large rectangular piece of plaster should now be applied, occupying the interscapular space and reaching down to the last dorsal spine. Another squarish piece is to cover the front and upper part of the chest between the clavicles and mammæ. Finally, the whole is to be well rubbed in all over. The patient is to sit quiet for a few minutes before dressing. Dr. M'Crea covers more of the lung than the portion apparently diseased. In a fortnight, a reapplication will probably be required. This will give a good opportunity for a careful examination of the condition of the lung. While the plasters are still on, the indications of the thermometer will be most valuable. If there be an exacerbation of the symptoms, particularly of the cough, dyspnœa, or pain, if the temperature rise, or if the plasters be obviously slack, new ones are to be applied. Dr. M'Crea states that this method of treatment is followed by an immediate and marked diminution of the cough, cessation of pain, relief of dyspnœa, and reduction of temperature, and that the patient usually expresses at once a feeling of great comfort. Dr. M'Crea feels so satisfied with the results of the numerous cases in which he has tried this method, that he gives it the first place among all the remedies for phthisis.

H. SUTHERLAND, M.D.

GOOPTA ON SUICIDE AND LUMBRICI.—The *Indian Medical Gazette* for July 1, 1874, contains a brief paper by Assistant-surgeon Gooro Doyal Doss Goopta, in charge of the medical dispensary at Tangail, in which he arrives at the conclusion that lumbricoid worms may be an exciting cause of suicide. Such deaths were more common among the Mussulmans than the Hindoos. Round worms were found in twelve out of eighteen bodies of suicidal hanging examined; that is, in two-thirds of the total number, or in about 67 per cent. The greater number of those who committed suicide were of the

age at which the round worm is common. There were only two above twenty-five years of age, and in these two worms were not found. Of the remaining sixteen who were below twenty-five years of age, in four only were no worms found, but in two of these [he says] I am not sure that the intestines were carefully searched. When the worms bring on irritation by reflex action the sufferers turn peevish and low-spirited, consequently they can scarcely withstand any trifling reprimand or other kind of correction. To them these very insignificant causes become so painful that they immediately resolve to relieve themselves by committing suicide, hanging being the mode of death generally preferred and adopted.

T. S. COBBOLD, M.D.

DISEASES OF CHILDREN.

CLARUS ON APHASIA IN CHILDREN.—Dr. Albrecht Clarus (*Fahrbuch für Kinderheilkunde*, vol. vii. p. 369), analyses fifty cases, two of them noted by himself, and the rest drawn from published sources.

1. *Aphasia in Idiots and the Deaf and Dumb*.—1. Congenital idiocy is not discussed. 2. Acquired idiocy and aphasia, consequent upon chronic hydrocephalus, encephalitis, frequent epileptic fits in infancy, syphilitic affections, and atrophy of the brain in general marasmus. In aphasia of the last two kinds, the prognosis is not bad; in cases of the other kinds, only a certain degree of improvement can be expected. Hughlings Jackson has pointed out that aphasic idiots who are not deaf, can sometimes sing words which they cannot speak. 3. Deaf-dumbness is not discussed. 4. Lastly, Clarus gives three cases of congenital aphasia, unconnected with defective intellect or with deafness: but in one of these cases the right side of the body was relatively atrophied; and in another there was possibly a slight degree of idiocy.

II. *Aphasia after Acute Diseases*.—1. Typhoid fever is that which is most frequently followed by aphasia; namely, in twelve cases. Ten of these were boys. Eight were between eight and eleven years of age, three between three and five, one was thirteen. Four became aphasic during convalescence, one in the fourth week, two in the third, one in the second, one on the eighth day, the others uncertain. As to the prognosis: one patient died on the eighteenth day of the fever, and on the tenth day of the aphasia; at the *post mortem* examination there were no naked eye lesions of the brain; one patient became perfectly speechless and hemiplegic, but this, no doubt, was a case of embolism of the brain, consequent upon valvular disease of the heart; all the other cases recovered in about three weeks. The reporter cannot help quoting a passage from Heberden upon this point: 'In febribus longis et periculosus pueri solent tandem obmutescere, et vox per dies aliquot supprimitur postquam extra omne periculum fuerunt; semper tamen redit, neque omnino triste augurium censendum est.' (*Comm.*, cap. 37.) 2. There were two cases of aphasia after measles. A girl aged eight became suddenly comatose, during the eruptive stage, and remained so for three days; afterwards she was left aphasic for a few more days, and then recovered. A boy, at the end of measles, was seized with convulsions and coma; he was left blind, deaf, and speechless; his hearing

returned, but he remained blind, became hemiplegic, quite demented, and so died. 3. Small-pox was attended by aphasia in one case, a child aged nine; temporary aphasia after coma came on in the maturation stage. 4. A boy of eight, dropsical after scarlet fever in the sixth week, had convulsions and coma, followed by right hemiplegia and aphasia; the hemiplegia passed off, the aphasia remained.

III. *Aphasia after Acute Disease of the Brain*.—1. Embolism, five cases (one very incompletely noted). In the four others there was valvular disease of the heart. Three were complicated with right hemiplegia, ending in death. In one case there was no hemiplegia; speech was regained in twenty-four hours. 2. Traumatic aphasia was met with in five cases. 3. Meningitis occurred in one case; partial recovery. 4. Tubercular meningitis was present in one case. 5. Abscess of the brain was found in one case, in the left anterior lobe.

IV. *Aphasia after Chronic Disease of the Brain*.—1. Tubercular tumour, four cases. 2. Hydatid tumour, six cases. In five of these cases the tumour did not exist in the left cerebral hemisphere; the author dwells upon this point.

V. *Aphasia in Neuroses*.—1. General convulsions, one case; pathology very uncertain. 2. Hemispasmus of the right side, two cases, narrated by Dr. Hughlings Jackson (*St. Andrew's Med. Assoc. Trans.*, vol. iii. p. 162). 3. Chorea, three cases; prognosis favourable. 4. Worms, two cases; recovery.

SAMUEL GEE, M.D.

BOUDON AND CHOUPEE ON THE USE OF IPECACUANHA ENEMATA IN INFANTILE CHOLERA AND PHTHISICAL DIARRHŒA. — Ipecacuanha enemata have been tried from time to time in divers diseases of the intestines. Graves and others have done so, but no one seems to have studied this method of treatment with any care. M. Boudon has taken up the subject of late, and the results of his experiments are published by M. H. Choupee (*Bulletin Général de Thérapeutique*, June 15, 1874).

I. *Method of Treatment*.—Take 308 grains (20 grammes, nearly three-quarters of an ounce) of bruised ipecacuanha root; and 18 ounces (500 grammes, nearly a pint) of distilled water. Make three successive decoctions (for ten minutes each) in one third of the water. Mix; give half of this quantity for an enema; or, in the case of a child, a quarter only. For an adult, add eight or ten drops of tincture of opium (*British Pharmacopœia*—five or six drops of Sydenham's laudanum). In some cases the quantity of ipecacuanha used has been double that given above, namely 40 grammes. Two enemata are to be given daily; one in the morning, two hours before breakfast: one in the evening, three hours after the last meal. Nausea sometimes follows; vomiting never. The aim of this method is to avoid producing vomiting; it is not supposed that the local effect of the ipecacuanha upon the rectum has much to do with the results. It is seldom that any inflammation of the rectum follows the enemata; and when it does, it passes off as soon as the enemata are left off. Reasons are given for believing that it is the emetina of the injections which does good, and not the opium or the minute quantity of tannin dissolved in them.

II. *Infantile Choleraic Diarrhœa*.—Of five cases, four recovered after from three to twelve enemata; one died, very likely in consequence of being wrongly fed during the treatment. In no case was vomiting produced. M. Choupee thus sums up. Ipecacuanha

seems to act powerfully against the diarrhœa of infants; and when given in enemata, which do not provoke the vomiting which often follows when ipecacuanha is given by the mouth, the enemata can be continued for a long time without weakening the patient, and therefore may be tried in obstinate chronic diarrhœa.

III. *Phthisical Diarrhœa*.—Of seventeen cases, cure took place in thirteen, amendment in two, failure in two. In one case the diarrhœa, which was unaffected by enemata of ten grammes each, was stopped when the quantity of ipecacuanha used was raised to twenty grammes. Most of the patients were in an advanced stage of phthisis; one, whose diarrhœa had lasted ten months, required thirty-four enemata before it was cured.

SAMUEL GEE, M.D.

FINCH ON A PECULIAR AND DANGEROUS AFFECTION OF THE RESPIRATORY ORGANS IN CHILDREN. Dr. Finch (in a pamphlet published by Harvey, Colchester) relates five cases of a laryngeal affection in children, which he attributes to the pressure of an enlarged thymus gland upon the recurrent laryngeal nerves, causing paralysis of the dilators of the glottis. The symptoms observed were persistent hoarse stridulous respiration, lasting with more or less complete remissions for months, or even years. There was an absence of all febrile symptoms. In all the cases a projection of the upper portion of the sternum was noted, and in three some enlargement of the cervical glands. Two cases were fatal from the gradually increasing difficulty of respiration, and in one of these a *post mortem* examination was made. The thymus gland was found to be greatly enlarged, occupying the upper portion of the anterior mediastinum, from the second intercostal space to near the lower border of the cricoid cartilage. The lining membrane of the larynx and trachea was injected and darker than natural, and adhering to the lower half was much tough dry mucus. In the three remaining cases, recovery from a succession of intermittent attacks had taken place.

[Numerous cases of hypertrophy of the thymus gland have been recorded in which there was no spasmodic affection of the larynx; and it has been shown that the theory of Kopp, that 'laryngismus stridulus,' the so-called 'thymic asthma,' was dependent upon the irritation or pressure of an enlarged thymus, was incorrect, and that in the majority of cases of laryngismus no such enlargement of the gland exists. It is to be regretted that the relations of the enlarged thymus to the laryngeal nerves was not ascertained in the *post mortem* examination recorded by Dr. Finch.—*Rep.*]

W. B. CHEADLE, M.D.

SURGERY.

SCHWARZ ON URETHRO-RECTAL FISTULA FOLLOWING AN ABSCESS OF THE PROSTATE.—M. Schwarz, interne in the Maison Municipale de Santé, reports, (*Union Médicale*, July 2, 1874), the following case, which was under the care of M. Demarquay. The patient, a baker, twenty-two years old, was admitted January 6, 1874. Four months before he had gonorrhœa, and was treated by injections of acetate of lead and diuretic medicines. The discharge lasted fifteen days and then ceased; the patient had difficulty in passing urine, then retention of urine.

A catheter was introduced and retained; he was feverish, had much pain in the perinæum, along the urethra, and in the penis. When the catheter was withdrawn, there was a discharge of pus from the meatus. He did not know whether at that time there was matter in his stools; but from that moment every time he passed urine part of it issued from the rectum. In the intervals of micturition no urine escaped *per anum*.

When admitted, he voided as much urine *per rectum* as *per urethram*. The diagnosis was, abscess in the prostate gland opening both into the urethra and rectum, a fistulous passage connecting the two openings. The day after admission an enema was administered, and he was examined with the American speculum. [The reporter is not quite certain what form of speculum is meant by the term 'American,' as there are several kinds of anal specula used in America; but probably Bozeman's was the one employed.—*Rep.*] There was seen, at the level of the anterior edge of the prostate, an elevation, or papule, in the centre of which was an orifice surrounded by small vegetations; into this orifice a stylet passed obliquely from below upwards, and from before backwards. On passing a metallic sound along the urethra, it could be felt by the probe in the sinus. An injection into the bladder did not pass into the rectum. After the examination, baths and emollient enemata were prescribed, a catheter was kept in the bladder, and the fistulous track was cauterised with tincture of iodine. It was found impossible to retain the catheter, in consequence of the suffering it caused. On the patient passing urine in the presence of the surgeon, it was found that about one third of the urine issued from the anus; and, on introducing the speculum into the rectum, the urine could be seen trickling from the orifice in the little pimple already described. No benefit resulting from the treatment, the sinus was cauterised with nitrate of silver four times, at intervals of seven, four, and six days. Improvement followed this, less urine passing by the anus; but this amelioration of the symptoms did not continue, and a fortnight later the whole fistulous track was cauterised by means of a platinum-probe reddened by the galvanic battery. Two strong cauterisations were employed. The patient did not suffer any pain from the operation. A catheter was again introduced; but it could not be kept in. At first the urine passed in much less quantity *per anum*; but when the slough caused by the cautery separated, it again flowed very freely. This only continued for a short time, and gradually the discharge of urine from the rectum diminished, until, thirty-three days after the operation, only about one-eighth of the whole quantity of urine was passed abnormally. Nitrate of silver was re-applied through the speculum to the spot whence pus could be seen to ooze. The result was good; and in a fortnight nearly all the urine passed through the urethra. Three months after, the patient left the hospital; he continued quite well.

M. Schwartz makes the following observations on the case.

Recto-urethral fistulæ are rare, and they arise from divers causes. Among the most frequent may be mentioned abscess of the prostate; more rarely they may result from abscess of Cowper's glands. These abscesses, the consequence most frequently of blennorrhagia, open into the urethra and into the rectum. The sinus, unceasingly irritated by the foreign matters which pass into it, does not close,

and in this manner the fistula arises. This accident, says M. Demarquay, most often follows those cases of gonorrhœa which are treated too heroically at their onset with balsams and injections. In these fistulæ, all the varieties that occur in ordinary perineal fistula may be found; the sinus may be more or less oblique, more or less sinuous, and from the principal sinus other secondary tracks may diverge. The seat is most frequently, as shown by the etiology, the region of the prostate gland; and next, the membranous part of the urethra.

An interesting point in this patient was, that when he had a seminal emission, the fluid all passed by the urethra, and none by the anus; this clearly showed that the urethral fistulous orifice was situated between the openings of the ejaculatory canals and the neck of the bladder.

The diagnosis of urethro-rectal fistula is made from the urine escaping from the anus at the moment of micturition *only*. In the case of vesico-rectal fistula, the flow, so to speak, is continuous. The prognosis, as regards cure, is always unfavourable; because, though the surgeon may frequently succeed in diminishing the calibre of the sinus, he very rarely succeeds in obliterating it completely. Under any circumstances, and whatever treatment may be adopted, the fistula fills up and heals but very slowly. Among the most important methods of treatment may be mentioned, cauterisations with the hot iron, divers caustics, injections, tincture of iodine, and, in some cases, section of the track.

WM. ALLINGHAM.

MC GUIRE ON DRAINAGE IN OBSTINATE CHRONIC INFLAMMATION OF THE BLADDER.—Dr. Hunter McGuire reports (*Virginia Medical Monthly*) a case of 'chronic inflammation, and probably ulceration of the bladder,' of eight years' duration, successfully treated by drainage; but, instead of effecting this by opening the vesico-vaginal septum, as done by Simpson, Emmet, and Parvin, he introduced a piece of India-rubber tubing, the portion of which to be introduced into the bladder was perforated by a shoemaker's punch, with holes half an inch apart. A straight silver tube was first passed into the bladder, and the tubing introduced through it; the silver tube was then withdrawn, and the caoutchouc one secured in place, and the free end put into a bottle to catch the urine. A vaginal suppository of morphia and belladonna was introduced. The catheter was removed and cleaned, a new one substituted whenever necessary, and the vaginal suppository was also repeated every twelve hours. Afterwards Dr. McGuire substituted a large silver catheter, nearly straight, with a large vesical opening for the India-rubber tube. At the end of six weeks an India-rubber bag was attached to the free end of the catheter, so as to allow the patient to get up and walk about. This treatment was continued for four months, when the tube was removed from the bladder. There was for some time afterwards incontinence of urine, but the bladder gradually regained its healthy power; and eight months after the commencement of the treatment the patient could retain her urine for about three hours, and void it without pain; and, except the increased frequency of micturition which was growing less, the patient was reported to be well.

CHEEVER ON THE SURGICAL TREATMENT OF NASO-PHARYNGEAL POLYPI.—Dr. David W. Cheever states (*Boston Med. and Surg. Journ.*, June 4,

1874) that after a thorough review of all the measures adopted to remove naso-pharyngeal polypi, he feels justified in drawing the following conclusions. 1. The excision, partial or complete, of the upper jaw is applicable only to the removal of tumours which grow from, or are attached to, some portion of that bone. 2. Tumours having their origin either in the sphenomaxillary fossa, the posterior nares, or the body of the occipito-sphenoid bone, can be attacked and completely removed by one of the operations for displacing the upper jaw, or the nose. 3. In this second class of cases, to remove any portion of the bony structures of the face, when they are unaffected by disease and could be displaced and restored, is to cause a needless mutilation, and is contrary to sound principles of conservative surgery. 4. For tumours in the sphenomaxillary fossa, Langenbeck's major operation is applicable. 5. For the growths in the posterior nares and top of the pharynx, Ollier's operation by displacing the nose; or Huguier's operation, modified by keeping the vascular connection of the palate and pterygoid processes unbroken, will either of them prove sufficient to eradicate the disease. 6. In very large tumours, there is no reason, *à priori*, why the operation of displacing the whole upper jaw should not succeed.

ANDREWS ON THE RESTRAINT OF HÆMORRHAGE DURING OPERATION IN THE MOUTH.—Dr. E. Andrews recommends (*Medical Examiner*, April, 1873) the following procedure, suggested to him by Dr. Ira Manly, of Markezan, Wisconsin, to overcome the difficulties encountered from hæmorrhage in operations in the mouth.

The patient being first etherised in the ordinary way, the mouth is held open by an instrument devised for the purpose by Dr. Andrews, and then the spray from the ether-spray apparatus is to be directed upon the roof of the mouth, but not with such intensity as to produce freezing. The cold thus produced contracts the vessels, so that Dr. Andrews was able to perform uranoplasty with comparatively little delay from hæmorrhage or accumulation of mucus. At the same time, the patient constantly inhaling the spray, the anæsthesia was steadily maintained.

MATERIA MEDICA AND THERAPEUTICS.

FALCK ON THE ACTION OF STRYCHNIA.—F. A. Falck (Volkmann's *Sammlung Klinischer Vorträge*, no. 69) says that strychnia is absorbed and acts most quickly when injected into the blood, more slowly from the subcutaneous cellular tissue, rectum, and conjunctiva, and more slowly still from the stomach. Absorption will occur through the lymphatics, even when all the vessels of the part to which it is applied have been carefully ligatured. It is often supposed to be absorbed from the bladder, but, according to the author's experiments, this is not the case. Many cases of strychnia-poisoning are either suicidal or homicidal, but not a few are accidental. Most of these are due to apothecaries either dispensing larger doses than have been prescribed, or substituting strychnia instead of other medicine. Some are due to patients taking too much of the prescribed medicine; but others are due to the fault of the

physician, who has either prescribed too large doses, or overlooked the cumulative action of the remedy, or prescribed badly. In one interesting case of the last sort, the physician ordered nitrate of strychnia in solution with too small a quantity of solvent. The strychnia, consequently, formed a sediment at the bottom of the vessel, and, on being swallowed, caused the patient's death. In another case, a most instructive one, nitrate of strychnia was prescribed with iodide of iron in solution. The iodine combined with the strychnia, and the sparingly soluble iodide of strychnia formed a sediment, which, when swallowed, caused death. A curious case of poisoning occurred in the person of a doctor in Berlin, who had received a quantity of arrow-poison from Java. He wished to ascertain its physiological action, and, instead of experimenting on animals first, he swallowed three grains of it himself. For a wonder he recovered, the substance containing no less than 60 per cent. of strychnia. The symptoms of strychnia-poisoning in man are first, quickened respiration, and afterwards, convulsions of a tetanic character. Sometimes there are general convulsions, but no tetanus. The shortest time in which tetanus has occurred is five minutes, and death in ten. The longest time is tetanus in two-and-a-half hours, and death in six. Where recovery takes place, the convulsions may last twelve hours. The symptoms are similar in mammals, birds, and batrachia. In snakes and white fish there is disturbed respiration, with quivering. In regard to the action of strychnia on single organs, it has been found that it does not paralyse the inhibitory centres of Setschenow; it stimulates the vasomotor centre, causing contraction of the arteries and increased blood-pressure; it renders the olfactory and optic nerves more sensitive, increasing the sense of smell, and the sharpness of vision, as well as enlarging the field of vision for blue and red. In poisonous doses, it produces hyperæsthesia of the retina in dogs. The pupil is dilated to its maximum during the tetanic convulsions, and is normal in the intervals. Strychnia has little action on the heart. It lessens the power of the blood to absorb oxygen. It slightly raises the temperature of the body. It causes contraction of the spleen, and acts upon that organ through the splanchnics. It is said to increase the secretion of urine. When given to a pregnant animal, it exerts but little action on the foetus in utero. According to the author, the common idea that strychnia acts primarily on the spinal cord is erroneous. On the contrary, it acts primarily upon the brain, its action being exerted on the vasomotor centre; on the inhibitory centre for the heart; on the respiratory centre so powerfully, that the irritation is propagated from this to the whole system of voluntary muscles; and lastly, on the reflex apparatus of the spinal cord. These actions excite secondary reflex stimuli, starting from the spinal cord and associating themselves with the cerebral ones. After this has lasted some time, the blood becomes poor in oxygen, and this deficiency of itself acts somewhat like strychnia and the poisoned animals die of asphyxia. The largest fatal dose of strychnia is four milligrammes of the nitrate in a child, and between fifteen and thirty of the sulphate in an adult. In mammals 0.6 milligrammes of nitrate of strychnia per kilogramme of body-weight is a fatal dose; for birds 2.0 milligrammes, for frogs 2.1 milligrammes, and for white fish about ten milligrammes. Frogs therefore require a larger dose than mammals instead of being much more susceptible to its action as is generally supposed. All salts of strychnia have

almost exactly the same action. After reviewing all the remedies hitherto proposed for poisoning by strychnia, the author concludes that the treatment, if convulsions have not set in, is to empty the stomach by emetics or the stomach-pump, to wash it out with decoction of galls, and combat the convulsions by chloroform. If convulsions have already begun, chloroform must be given at once and the intestinal canal emptied afterwards. When the poison has been absorbed from a wound, it should be washed, excised, or cauterised. Death from strychnia cannot be diagnosed with certainty from *post mortem* appearances. The best method of detecting its presence in the stomach or elsewhere is that of Dragendorff. Strychnia is not destroyed by putrefaction of the tissues. Its chief medicinal uses are in paralyses, motor or sensory. It is also employed in chorea, epilepsy, and writer's cramp, dyspepsia and constipation. The best form is pills, or, still better, subcutaneous injection. The dose for use in the latter should not exceed eight milligrammes.

T. LAUDER BRUNTON, M.D.

PARVIN AND OTHERS ON THE TREATMENT OF UTERINE FIBROID BY HYPODERMIC INJECTIONS OF ERGOTINE.—Dr. T. Parvin records (*American Practitioner*, May, 1874), three cases of uterine fibroid, in which marked benefit followed the hypodermic administration of ergotine. In all the cases heretofore treated, so far as Dr. Parvin knows, the ergotine has been administered with glycerine, which Dr. J. T. Bowls, of Knightstown, Indiana, shows to be a needless and may be injurious addition, causing in some cases painful inflammation and threatening abscesses, which was not observed when the glycerine was omitted, and the efficiency of the injection was not found to be lessened.

Dr. A. Reeves Jackson reported to the Chicago Society of Physicians and Surgeons (*Chicago Med. Journ.*, June, 1874) five cases of fibrous tumour of the uterus treated by the method of Hildebrandt, and in three of them with decidedly favourable results. Dr. Jackson obtained the best results from a solution prepared according to the following form. Fifty grains of the extract (Squibb's) are dissolved in 250 minims of water, the solution filtered and made up to 300 minims, by passing water through the filter to wash it and the residue upon it. It represents ergot grain for minim, free from alcohol or other irritating substance. Latterly he has used this solution exclusively, and thus far has seen no irritation, pain, or inflammation result from it. He no longer selects the abdomen as the site for injection. Although some parts of the abdominal wall—as about the umbilicus, for example—may be less sensitive to puncture than others, yet all parts of it are more sensitive than the deltoid region; and inasmuch as the latter is more convenient, and the injections placed there equally efficacious, he now habitually selects the arm in preference to any other part of the body.

Another case was reported to the society by Dr. J. H. Etheridge, three by Dr. H. P. Merriman, and one by Dr. S. Fisher, in all of which beneficial results followed the hypodermic use of ergotine.

BLACK ON BROMIDE OF AMMONIUM IN CATAMENIAL EXCESSES.—Dr. J. K. Black, of Newark, Ohio, has often tested the efficiency of this preparation in non-structural excesses, and he speaks (*Cincinnati Lancet and Observer*, May, 1874) with confidence of its valuable powers. He says he no

more certainly anticipates the arrest of an attack of ague by the administration of quinia, than does he anticipate the control of the forms of catamenial excess referred to, by the proper administration of the bromide of ammonium.

In the administration of the remedy an essential rule is, that its use shall precede the expected period by at least ten days. Its administration only during the crisis will do very little, if any, good. The sedative influence of the remedy must precede and accompany the stage of ovarian and uterine vascular engorgement, which itself precedes the flow by several days.

Some writers have spoken quite favourably of the remedy in dysmenorrhœa and menorrhagia, administered in the usual manner; that is, during the crisis only. Having been frequently called to see cases of these disorders during their progress, he has failed to observe any very satisfactory evidence of its controlling power while administered only during the emergency. But when administered according to the above directions, it has not only, almost without exception, lessened a regular monthly excess, but it has, in appropriate cases, in quite a number of instances which he can recall to memory, changed a two-week into a four-week crisis.

Any associated disorder, which has even a remote bearing upon the menstrual excess, should receive appropriate attention; otherwise the controlling power of the bromide may be more or less uncertain or transitory.

MISCELLANY.

OPHTHALMIA IN PAUPER SCHOOLS.—Mr. Edward Nettleship has been appointed a temporary Inspector of the Local Government Board, to report on the causes and means of removal of the prevalent ophthalmia in poor law schools.

NAVAL MEDICAL SERVICE.—The following is a list of the Naval Medical Candidates who were successful at both the London and Netley examinations, having passed through a course of instruction at the Army Medical School at Netley, and who will receive commissions as surgeons in the Royal Navy, August, 1874:—

| | No. of Marks. |
|---------------------------------|---------------|
| 1. Saunders, E. H. | 4,297 |
| 2. Richardson, H. A. W. | 3,825 |
| 3. Collot, J. A. | 3,460 |
| 4. Luther, E. W. | 3,437 |
| 5. Benthams, R. | 3,425 |
| 6. Ross, N. C. | 3,394 |
| 7. Collins, H. B. | 3,179 |
| 8. Bennett, W. E. | 3,150 |
| 9. McKinlay, A. | 3,032 |
| 10. Hawton, S. W. H. | 2,910 |
| 11. Mulock, E. R. | 2,800 |

DEATH UNDER THE INFLUENCE OF CHLOROFORM.—An inquest was held on Saturday Aug. 1, at the Woolwich Union Workhouse, before Mr. Carttar, coroner, on the body of Ellen Graham, a single young woman, who died from the effects of the administration of chloroform by the house-surgeon. It appeared that the deceased was in service at Brighton; and one day, whilst she was cleaning the floor, a broken pin, which was in the house-flannel, ran into the back of her hand. The pain incapacitated her from service, and she returned home to Woolwich, and was advised to go into the Union Infirmary. After being there a few days Dr. Lloyd (the resident surgeon) incised the part with the object of extracting the broken pin, but, as she was unable to bear the pain, he desisted. On July 30

she expressed a wish to the doctor to have the pin extracted under the influence of chloroform. Dr. Lloyd said to her, 'There is no occasion for chloroform. You bore it before like a Briton, and can bear it again.' But she persisted in her wish for chloroform. He felt her pulse, and, considering her a fit subject for chloroform, administered it in the presence of two female nurses, named Nott and Bell. The chloroform took effect very quickly, the pin was extracted by forceps in about a minute; but deceased grew paler and paler, and was evidently dying. Dr. Lloyd at once sent for another medical man and used every means of restoration; but she expired within ten minutes of inhaling the vapour, the galvanic battery being applied for twenty minutes, but in vain. Dr. Lloyd had administered chloroform before in about 500 cases. The *post mortem* examination was made by Dr. Bullen, the house surgeon at Lambeth Union Workhouse, Dr. Wise, the medical practitioner called in when deceased was dying, and Dr. Lloyd. The heart was found flabby, and inclined to fatty degeneration, death having resulted from paralysis of the heart, induced by the effect of the chloroform. The jury returned a verdict of 'Died from the effects of chloroform administered during an operation,' and appended a rider that in future it would be desirable that a second medical practitioner should be present whenever chloroform was administered to inmates of the infirmary.

VALUABLE RESULTS OF DRAINAGE.—Mr. James Burdett Moxon, the Medical Officer of Health of the Glanford Brigg Union, makes some interesting remarks on the valuable effect of the improvements of the drainage of the district, which have been and are still being carried out to a very considerable extent.

'By these and other means the district has been improved in the most remarkable manner. It is probable, indeed, that in no part of the kingdom have general and subsoil drainage, and other agricultural improvements, made a greater change in the aspect and fertility of the country, and, incidentally, in the health of the inhabitants. A hundred years ago, perhaps, the Wolds and Cliff lands were uninclosed wastes or rabbit-warrens; even in the neighbourhood of the villages the country was open, and used for pasturage only; there were many uncultivated moors; the Ancholme Level was frequently submerged, and nearly useless for farming purposes; and the roads were of the most primitive nature, and almost impassable in winter.

'What was the effect of this condition of the country on the sickness and mortality of the inhabitants cannot now be stated with accuracy. It is, however, well known that fever and ague were permanently present; and there is no doubt that other diseases, such as rheumatism and consumption, would be more frequently seen than they are, even at the present day. Within my own memory there was an enormous consumption of quinine in this part of Lincolnshire, as a remedy for the ever-prevalent ague. It is probable, too, that the habit of opium-eating, which prevails so extensively in Lincolnshire, is connected, in its origin, with a desire to alleviate the distressing sensations of constant ill-health which most experience who live in malarious districts. Mr. Moxon believes, however, this pernicious habit is on the decrease. Among other causes of improvement, a recent Act of Parliament, which prohibits the sale of opium and certain other poisons, except by duly qualified and registered druggists, has banished it from the small village shops, and thus removed many of the opportunities for its ready purchase.

'With especial reference to ague, we observe, in passing, that we have here a notable instance of the effect of sanitary measures in the removal of the *causes* of disease. Good general drainage of this district, and other measures necessary for agricultural success, have, incidentally, abolished this disease. Let us hope that the operation of sanitary laws directed to the removal of the causes of other equally preventable diseases, will be equally successful.'

UNIVERSITY OF LONDON.—The following gentlemen have lately passed the Preliminary Scientific (M.B.) Examination for 1874:—*First Division*—Baddeley, Charles Edward, King's College; Berry, Frederick Haycraft, Guy's Hospital; Bond, James William, University College; Boulting, William; University College; Buck, John William, private study; Burry, Henry Burry Pullen, London Hospital; Bush, Erasmus, St. Bartholomew's Hospital; Castle, Hutton, St. Thomas's Hospital; Cattle, Charles Henry, Leeds School of Medicine; Cox, Frederick Augustus, private study; Crow, John Kent, Owens College; Drysdale, Alfred Edgar, University College; Franklin, Arthur, St. Bartholomew's Hospital; Giles, Bernard Faraday, Guy's Hospital; Gill, Richard, Royal Institution School, Liverpool; Granger, Edgar Bridden, Guy's Hospital; Gotch, Francis, B.A., University College; Hill, Alexander, University College; Jackson, Edwin, B.A., Owens College Medical School; Keep, Charles Henry, Guy's Hospital; Lyddon, Richard, St. Bartholomew's Hospital; McAlister, Donald, St. John's College, Cambridge; Mackern, George, Guy's Hospital; Manby, Herbert Lynsey, Guy's Hospital; Maylard, Alfred Ernest, Guy's Hospital; Munro, John May Herbert, College of Science, Dublin; Oldroyd, Joseph Hollinshead, University College and private study; Paddle, James Isaac, B.A., Royal College, Mauritius; Parry, Robert, Owens College; Pollard, Bilton, Epsom College; Prowse, Arthur Bancks, Liverpool School of Medicine, and private study; Robertson, David, LL.B., private study; Sedgfield, Arthur Robert Wyatt, King's College; Shaw, John, St. Thomas's Hospital; Smith, George, Royal School of Mines; Smith, Kenneth Rawlings, University College; Tilly, Alfred, St. Mary's Hospital; Tuke, William Samuel, private study; Uthoff, John Caldwell, Guy's Hospital; Wainwright, Robert Spencer, Guy's Hospital; Ward, John Hansford, Crescent School, Margate; Waugh, Henry Dunn, B.A., University College; West, Edward de Lancy, private study; White, Augustus Henry Scott, B.A., University College; Whitney, Neville Scott, University College; Wiglesworth, Joseph, Liverpool School of Medicine; Wilkinson, Arthur Thomas, B.A.; Owens College Medical School; Williams, David James, University College; Williams, Dawson, University College. *Second Division*—Andrews, William Stratford, University College; Brook, Lancelot, St. Bartholomew's Hospital; Buckell, Arthur Edward, University College; Burt, Alfred, Guy's Hospital; Clark, James Richardson Andrew, University College; Collins, William Edward, St. George's Hospital; Culhane, Fredk. William Slater, University and Epsom Colleges; Davies, William Edward, University College; Davy, David Henry, London Hospital; Dunbar, James John McWhirter, St. George's Hospital; Duncan, Henry Montague, University College; Dymott, Donald Frederick, Hartley Institution; Gabb, James Percy Alwyne, University College; Green, Thomas Beaufoy, University College; Haddon, Walter Baugh, Liverpool School of Medicine and private study; Heath, William Lenton, St. Bartholomew's Hospital; Hill, Charles Birnie, University College; Hodge, Arthur, University College; Hopkins, John, University College; Jackman, William Thomas, St. Bartholomew's Hospital; Jackson, Alfred Henrick, Owens College; Jackson, Arthur, St. Bartholomew's Hospital; Johnstone, William, University College; Jones, Arthur Lloyd, University College; Jones, Roger Hughes, Liverpool School of Medicine; Juler, Henry Edward, St. Mary's Hospital; Landon, Edward, St. Thomas's Hospital; Lendon, Alfred Austin, University College; Lubbock, Montagu, Guy's Hospital; Marsh, Joseph Henry, St. Thomas's Hospital; Matthews, A. thur, Sidney Sussex College, Cambridge; Matthews, Valentine, King's College; Parkyn, Ernest Albert, University College and private study; Payne, Charles Alexander, private tuition; Plunbe, Samuel Thomson, St. Bartholomew's Hospital; Rendell, James Robson, Owens College; Roberts, David Davies, Guy's Hospital;

Roeckel, Waldemar Joseph, St. Bartholomew's Hospital; Shaw, George, private study; Smith, Herbert Urnson, St. Thomas's Hospital; Sutcliffe, John, Owens College Medical School; Tebbitt, Frederic, St. Thomas's Hospital; White, Charles Haydon, St. Thomas's Hospital.—The following have passed the First (M.B.) examination: Entire Examination:—*First Division*—Burton, Samuel Herbert, University College; Carrington, Robert Edmund, Guy's Hospital; Keetley, Charles Robert Bell, St. Bartholomew's Hospital; Tirard, Nestor Isidore Charles, King's College. *Second Division*—Blake, Henry, St. George's Hospital; Fox, Thomas Colcott, University College; Freund, Percy Herbert Edmund, St. Thomas's Hospital; Giles, George Michael James, St. Mary's Hospital; Godfrey, Charles Walter, University College; Gosling, Charles Edward, Queen's College, Birmingham, and St. Bartholomew's; Hunt, Joseph William, University College; Joule, John Samuel, Anderson's University and St. Bartholomew's; Kidd, Walter Aubrey, Guy's Hospital; Pinnell, Thomas Mark, University College; Rosister, George Frederick, St. Thomas's Hospital; Sankey, Herbert Richard Octavius, University College; Snell, Edward Arthur, King's College; Symonds, Charters James, Guy's Hospital; Trafford, John Foster, University College. Excluding Physiology: *First Division*—Champneys, Henry Laurence, Guy's Hospital. *Second Division*—Baker, Albert De Winter, Guy's Hospital; Bigger, Samuel Ferguson, Liverpool School of Medicine; Cross, Francis Richardson, King's College; Cuming, Charles Henry, University College; Finch, Alfred, Guy's Hospital; Pickup, William James, University College; Ryley, James, University College. Physiology only: *First Division*—Whitelegge, Benjamin Arthur, University College. *Second Division*—Batterbury, Richard Legg, King's College; Cooke, Edward Marriot, King's College; Duke, Herbert, Guy's Hospital; Evans, Charles Walter, University College; Ferrier, John Christian, Guy's Hospital; Harrison, Charles Edward, St. Bartholomew's Hospital; Landon, Arthur Jermyn, St. Bartholomew's Hospital; Langley, John Geoffrey, University College; Taunton, William Whitchurch, B.Sc., University College.

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The London Medical Record.

WEDNESDAY, AUGUST 19, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

REUMONT ON METALLIC POISONING AND ITS TREATMENT BY MINERAL WATERS.

There are two kinds of quicksilver disease: that of artisans, which is produced in the practice of various arts in which mercury is employed; and medicinal mercurialism, which is produced by mercury introduced into the system for medicinal ends. Both sorts are in their nature very similar, and differ chiefly in the degree of acuteness of their symptoms, and according to the presence or absence of combinations with affections of the system previously existing—especially syphilis.

We need not inquire here whether mercury applied in the way of inunction reaches the system only by the inhaling and the swallowing of the volatile portions of mercury, or by actual penetration through the skin. The fact is sufficient for us, that mercury in various forms and in different ways enters the body, and through the blood reaches its most different organs. This is proved partly by its effects, and partly by the presence of the metal in the blood, in various organs, and in the secretions and excretions. Riederer found in the excretions and excrements of a dog who had in the course of thirty-one days received 2,789 grammes of mercury, nearly ninety-four per cent. of the mercury that had been introduced. After the fæces and the urine, he found most in the liver, next most in the brain, the heart and the lungs, the spleen, the pancreas, the kidneys, the testicles, and least in the muscular substance. In this last respect Heubel's experiments with lead give the same results.

According to the theory of Voit, all the preparations of mercury are, with the help of the chloride of sodium (in the perspiration and in the blood-serum), of the blood-corpuscles and of the albumen, transformed into corrosive sublimate, which in the blood enters into a double combination of albuminate of oxide of mercury with chloride of sodium, the form in which all preparations of mercury exist in the system. This theory arrived at after most careful research continues to be serviceable, and is used to explain the disease and the health-producing effects of the metal. Although the later researches of Boeck seem to show that mercury has no effect on the albumen of the circulating fluid, it does not follow necessarily that it has not an action on the more fixed albumen of the organs, on which the symptoms of hydrargyrosis are dependent.

Of the alteration produced in the blood by mercury we know little, and that little is contradictory. Overbeck's careful researches lead him to believe that mercurialism produces a sort of anæmia, that in mercurial blood the quantity of blood-corpuscles and of albumen is diminished, while its coagulability is increased, and its amount of water is fluctuating.

It seems to be established that all preparations of mercury, if introduced into the system in sufficient quantity, induce an increased excretion of bile, and sometimes a passage of albumen through the urine.

As to the form in which mercury quits the system, little is known with accuracy. In the alimentary canal, it is found as sulphuret of mercury. It is not determined in what shape it appears in the perspiration. As to the stories of metallic mercury being given out in baths, they require no serious consideration; although it is certain that gold and silver articles worn by those who are taking mercury, occasionally become stained by an amalgam. It has been concluded that mercury in the urine is in the shape of an albuminate, chiefly because the urine of patients under mercury often contains albumen. On the whole the view of Overbeck is probable, that mercury is not eliminated from the system, until it has been separated from its albumen.

The question how long mercury remains in the system, is one of practical importance. The anti-mercurialists speak in support of their favourite views, of its remaining many years in it; but there is no proof of this. According to Overbeck and Waller, the spontaneous elimination of mercury proceeds slowly, and may occupy seven months, or even longer. Kussmaul speaks of many months, up to twelve, and even more. The organs which appear to retain the mercury, the longest are the liver and the kidneys, and the liver contains most.

Kussmaul and Overbeck have done the great service, by their researches, of dispelling in a great measure the mistaken views which have prevailed among physicians, respecting the relation of syphilis to mercury. 'A two-fold picture of mercurialism,' says Kussmaul, 'runs through our literature; one painted by those who have studied it as it occurs among quicksilver workmen, the other by those who study syphilis. The first picture has altered little in the course of time; the second has always varied according to the course of opinions on syphilis. A set of fanatical antimercurelists put down every ailment in the whole course of the life of a man, who may have once taken a few grains of mercury for syphilis, to the account of the metal; and looked on syphilis as a very mild disease, unless aggravated by the use of mercury. The most violent even denied that there was such a thing as syphilis, regarding it only as mercurialism.'

In its best-marked and really frightful form, true mercurial disease is rarely witnessed except in quicksilver workmen; it shows itself in a much milder form in those who have used mercury only for medicinal purposes. In the mercurialism of artisans there are three stages of development—the stage of erethism, that of tremor, and the final stage, although there is no marked line of distinction between them. In all stages, the nervous system is affected in a marked degree. Such marked stages are seldom or never to be seen in mercurialism from the administration of the metal, and the symptoms are seldom simple; they are almost always combined with those of syphilis or of some other disease.

The pure symptoms of mercurialism occurring after the medicinal use of the metal that occur most frequently, are either general or local: anæmic and chlorotic conditions, disturbance of nutrition showing itself chiefly in emaciation and in muscular weakness; gastric and febrile conditions, affections of the nervous system, such as painful sensations, gnawing rheumatic pains, tremors, and paralysis;

and consequent on these, swimming in the head, loss of memory, &c. But these last symptoms undoubtedly belong more or less to syphilis also. The commonest local symptoms are shown in the mucous membrane of the mouth, the tonsils, the salivary glands, and in fresher cases, in the mercurial rashes.

In both mercurial and syphilitic affections there is a certain alteration in the blood; but it must vary in the two, as the symptoms to which it gives rise are very different. In syphilis, one of the first symptoms is the swelling of many of the lymphatic glands, whereas we have only rarely in mercurialism some swelling of the cervical glands, as a consequence of stomatitis. The pathological productions of the two diseases are very different. The mercurial dyscrasy must be viewed, on the whole, as a catalytic process, which has little to do with new or plastic formations, and which, at most, causes some thickening of the mucous membranes and the enlargement of a few glands; while syphilis shows the greatest tendency to hyperplastic and new formations. Soft nodes (gummy exudations) occur in syphilis only.

As regards the further question, whether mercurialism does not impart a malignant character to syphilis, we may reply, that the worst forms of syphilis occur in those who are not treated at all, or certainly not with mercurials; while we grant that the solvent action of mercury may be prejudicial in phagedænic and sloughing ulcerations. As to the affections of the bones ascribed to mercurialism, we have already said, that only local ones of the jaws, connected with profuse salivation, are ever produced.

If lead be introduced into the system for any length of time, in small quantities, the characteristic symptoms of lead-poisoning are produced. Lead is partly inhaled in extremely minute particles, partly taken up in the intestinal canal, partly introduced through the skin, or through the nasal passages in snuffing into the circulation. It is probable that all preparations of lead become converted in the intestinal canal into albuminates, which, being dissolved in the stomach, are partly introduced into the system. It is not known in what form it exists in the blood, but it occurs in it in smaller quantities than in other parts of the system. From the blood, the lead passes into the parenchyma of various organs.

Little is known of the mode of operation of lead in the system, though it has been generally believed that it has a special affinity for the voluntary muscles, and occasions paralysis of them and loss of their electro-muscular contractibility. But Heubel has recently arrived at some important conclusions. He finds that the relatively greater quantity of lead accumulates first in the osseous substance, and next in the kidneys. After this come the liver, the central portion of the nervous system, and only after these the muscular and intestinal fibres. Heubel, therefore, rejects the theory that blood impregnated with lead has a power of contracting the muscular coats of arteries and of veins. Heubel, regarding the liver and kidneys as being merely the organs that eliminate lead, and on that account contain a large portion of it, thinks that lead has on the whole the greatest affinity to the nerve-substance.

The elimination of lead from the system, apart from what passes through the intestinal canal as sulphuret, takes place most frequently through the biliary secretion. It has been assumed that lead is eliminated through the skin, owing to the dark colour

of the skin after sulphur-baths which has occasionally been observed. The occurrence is undoubtedly very rare, and is explained by the action of the sulphur of the water on particles of lead lying in the folds of the skin.

Lead-poisoning has of late years become more frequent, owing to the use of cosmetics and of snuff containing the metal. It sometimes requires much discrimination on the part of the physician to discover it. The blue line on the gums is often a most valuable sign. The peculiar symptoms of Saturnism are, according to their frequency, lead colic, pains of the joints, paralysis, affections of the brain, anæsthesia. The characteristic paralysis attacks most frequently the fingers, the hands, and the fore-arms, less often, the lower extremities. The great characteristic is the loss of extensor, not of flexor, power.

As to other metallic poisonings—chronic arsenical poisoning is rare. Some doubt whether there is such a thing as chronic copper poisoning, but paralysis of the extremities is said to characterise it.

It would be very desirable to explain how sulphur-waters are able to fulfil the indication of disengaging the metal stagnating in the system, and of causing its quicker elimination through the skin, liver, and kidneys. To account for it, Astruc has propounded the theory with reference to mercury and to lead, that the sulphurets of the alkalies and the sulphate salts render the metallic albuminates soluble, and that the albuminates, having been made soluble, are conveyed out by means of the secreting organs, whose functions have been heightened by the whole process of a water-cure. Probably the sulphur-waters act in this case by dissolving the protein-compounds. For the present we must be satisfied to use such chemical views as working hypotheses, and indeed they are supported to a considerable extent by clinical observation, although there is no doubt that there are other factors concerned in the elimination of metals.

We know as yet few facts which prove direct elimination of metals by the use of sulphur-waters. The occasional occurrence of mercurial stomatitis and salivation during a sulphur-water cure in patients, who have used mercury even at a considerable distance of time, can only be explained by the blood's taking up metal which had been combined with the tissue of organs. There are analogous cases of the reappearance of symptoms of lead-poisoning in patients, who had been apparently cured of it. Although we can receive only with the greatest reserve old and new stories of metallic quicksilver being found in the baths used by mercurialised patients, or in their cutaneous eruptions during a bath-cure, yet it would seem that the metal is sometimes eliminated through the skin. Besides the case quoted by Overbeck, two cases have occurred to me (Reumont) and to my colleague Diemer, which can scarcely be interpreted in any other way than as instances of elimination of mercury in the form of sulphuret in the perspiration. I have in strongly mercurialised patients, observed by the electrolytic process during the cure at Aix, mercury in very minute quantities in the urine. Hemmann, of Schinznach, has made the statement that he has washed metallic mercury from the faces.

Like mercury, all other metals must, under treatment which relieves the symptoms, be extracted from the tissues. And when Tanquerel speaks of a black appearance of the skin in cases of lead-poisoning treated with sulphur-baths, he attributes this, as has been already remarked, to the union of sulphur with minute portions of mercury in the folds of the

skin. I have (says Reumont) several times observed somewhat similar effects in those treated with mercurial inunction and sulphur-baths.

But much more important for the physician than the theory of their operation is the clinical observation of the value of sulphur-waters in metallic poisonings. The mercurialism of artisans naturally is seldom sent for treatment to baths, whereas medicinal mercurialism is very common, and very frequently complicated with syphilis. Some of the most renowned practitioners bear testimony to the value of sulphur-waters in such cases. Robbi commences his cure with sulphur-baths, Himby recommends them in mercurial amaurosis, Horn and Romberg in tremor, Roth in mercurial hoarseness. Many French, Swiss, and German physicians, besides those of Aix-la-Chapelle, are equally loud in their praise.

As to the method of using sulphur-waters in such cases, it is necessary to introduce the sulphur into the blood in every variety of way. Baths, drinking, and inhalations all come into play, and douches or vapour-baths, are of special use in helping the elimination of the metallic molecules.

Chronic lead-poisoning has of late years been pretty frequently treated at sulphur-baths; it has generally been caused by food or drink containing lead, by cosmetics, or by snuff. Men of great clinical repute as Schönlein, Romberg, Autenrieth, and many others, have had the greatest faith in its treatment by sulphur-waters. I myself have cured by them various cases of paralysis and colic induced by snuff.

There are very few notices of the treatment of arsenical or copper poisoning by sulphur-waters. But there are a few successful cases on record. I myself treated with success a case of arsenical poisoning brought on by stuffing animals with arsenical paste.

[This paper forms a natural supplement to Dr. Reumont's former one on 'Constitutional Syphilis,' which lately appeared in the LONDON MEDICAL RECORD. It is also a condensed translation of a portion of his article in *Valentiner's Handbuch der Balneologie*. Dr. Reumont has published the portion of that article which referred to syphilis and mercurial poisoning in a separate shape, and has added some very sensible remarks on syphilidophobia, a troublesome form of hypochondriasis.—*Rep.*]

J. MACPHERSON, M.D.

BERGER ON HEMICRANIA.

Dr. Oscar Berger publishes in Virchow's *Archiv*, vol. lix. parts 3 and 4, an exhaustive paper of twenty-five pages, on the pathogeny of hemicrania, giving the histories of several cases, with clinical remarks upon them. The author prefaces his paper with a review of the opinions of different observers. He first instances the view put forward by Du Bois-Reymond, that the paroxysms of pain depend upon a tetanus of the muscular coats of the vessels of the affected side, or tetanus in the sympathetic region of the corresponding side. Pressure exerted by contraction on the sensory nerves may be the immediate cause of pain, just as in parturition or colic. The vomiting and glimmering of the eye in migraine, Du Bois-Reymond thinks, may be explained by the fluctuation in the cerebral circulation, as in Wollaston's theory of seasickness.

Eulenburg and Guttmann observed, in several

cases presenting the same characters, a contraction of the pupil towards the end of the attack, and simultaneously with reddening and rise of temperature of the affected side.

Brunner observed, in his own case, a distinct painfulness on pressure in the neighbourhood of the upper and middle cervical ganglia of the sympathetic.

Du Bois-Reymond's hemicrania sympathico-tonica is not a true neuralgia, but an affection of the sympathetic of the neck.

Berger has noticed several cases of hemicrania, presenting symptoms which supported Du Bois-Reymond's view completely, and for which nitrite of amyl was ordered; later, Vogel and Holst have employed the same remedy with good results.

The author has observed dilatation of the pupil in two only out of the six cases; and in no case was he able to prove a secondary contraction.

About eight years after Du Bois-Reymond's communication, Möllendorff started a theory of hemicrania, according to which it is due to a want of tone of the vaso-motor nerve controlling the carotid artery, whereby the vessel relaxes and an arterial flow towards the cerebrum takes place; i.e. an arterial hyperæmia in the neighbourhood of the cervical sympathetic. In opposition to Du Bois-Reymond's view, he advanced in support of his opinion the following circumstances. Compression of the carotid of the affected side caused instant cessation of headache, which returned within the first pulse-wave after slackening the pressure; whilst, on the other hand, compression of the carotid of the sound side increased the headache; dilatation of the arteria centralis retinae, and congestion of the choroidal vessels of the affected side pointed to the same conclusion. Möllendorff observed likewise a marked retardation of the heart's action, and a small contracted radial pulse, with a soft large wave in the carotid. These facts, says Berger, may explain the subjective sensations of coldness of the extremities with heat of the affected part. Berger thinks, therefore, that besides a hemicrania sympathico-tonica, a hemicrania sympathico-paralytica must be admitted, in which, instead of cramp of the muscular coat, there is a want of tonicity.

The retardation of the circulation mentioned by Möllendorff is, according to the observations of Landois, dependent upon a direct irritation of the medulla oblongata and vagus nerve. The increased secretion of saliva and urine accompanying migraine is explained by Möllendorff, as dependent upon congestion of the organs brought on by secondary dilatation of the vessels.

In cases of hemicrania sympathico-paralytica we must look, says the author, for another cause of the pain than that asserted by Du-Bois Reymond. It is dependent in great measure upon the hyperæmia itself; the distended state of the blood-vessels exerts pressure on the nerve-fibres and ganglia of the brain. The author agrees with Eulenburg and Guttmann in thinking that the pain in the tonic cases may be explained by the fluctuating character of the arterial current. The local anomalies of the circulation are to be regarded as the essential causes of the symptoms in migraine.

Berger quotes the old authors, viz., Fordyce, Monro, Tissot, Ackermann, and Frank, and then proceeds to give at great length the clinical history of a case of right hemicrania sympathico-paralytica. He remarks that there was no hereditary tendency to ner-

vous disease, but there were symptoms of scrofula at the age of fourteen. The woman had suffered from headaches since her eighteenth year; they used to occur after any bodily or mental fatigue, and at the menstrual periods. The author goes on to give in minute detail an account of the symptoms of true megrim exhibited by the patient. An attack appears to have been brought on by such slight causes as draughts of air, close atmosphere, exposure to the direct rays of the sun, etc. The reddening of the right side of the face was limited exactly to the middle line in front. The temperature of the two sides of the face, as measured by equivalent thermometers, showed an increase of 5.5° to 7° Fahr. on the affected side. The right temporal artery was manifestly dilated, and in less degree the right carotid also. "The conjunctiva was congested. The fissure between the eyelids was narrowed and the pupil contracted; the reaction to the stimulus of light was impaired. However, the ophthalmoscope showed no difference in the functions of the two eyes, or in the power of accommodation. (It is to be noted that the other symptoms were not so pronounced at the time of examination.) An extremely intense pain occurred on pressure over a spot corresponding to the upper cervical ganglion of the sympathetic. Pressure also over the spinous processes of the seventh cervical and first dorsal vertebræ gave great pain at all times, but especially during an attack.

There would seem, the author thinks, no doubt that the symptoms presented by the case are to be referred to the cervical sympathetic of the right side. He regards the pain produced by pressure directed over this nerve as an important and nosologically interesting symptom. Of little less interest appears a condition of heightened cutaneous sensibility of the right side of the face during an attack, and accompanying the hyperæmia. Not only was ordinary sensation increased, but the special sense of touch also.

The patient, whose malady had remained unchanged for ten years, was subjected by Dr. Berger to a course of treatment by electricity over the right sympathetic, the cathode being planted at the inner border of the auriculo-mastoid fossa, while the anode was placed over the first dorsal vertebra, during each sitting, which lasted a few minutes. The current was alternately opened and closed.

The result of this treatment was as surprising as interesting. After the first six or eight sittings, the attacks became much less severe; especially had the true violent character of the megrim disappeared. Four months after the commencement of this treatment, even at the menstrual periods, when she used invariably to have a violent attack, she escaped with only one. The reddening of the right side of the face returned now and then, but was confined to the forehead. The oculo-papillary symptoms were alone distinctly present. The vaso-motor nerves of the skin of this patient were so susceptible of impressions, that the applications of the poles of the battery for three or four minutes sufficed to cause erythema.

The symptoms of this case, the author considers, bear an interesting relation to some undoubted results of experimental inquiry; corresponding as they do, in all particulars, with those following section of the cervical sympathetic. The reddening and elevation of temperature of the right side, with excessive sweating and lacrymation, depend upon paralysis of vaso-motor fibres, and consequent widening of the blood-vessels. The contraction of the pupil and narrowing of the orbicular aperture are

due to paralysis of the oculo-papillary fibres, as the researches of Bernard, and later of Du Petit and Biffi, have taught us. The lowering of the pulse is to be referred to the action of the dilated intracranial vessels, in causing an irritating pressure upon the nerve-centre supplying the heart.

The author next proceeds to quote examples of similar symptoms caused by compression of the nerves from traumatic lesions or other causes; 1st, Cases of paralytic myosis, observed as arising from swelling of the glands of the neck (Willebrandt) or from aneurism of the aorta and its great branches (Gairdner, Coats); 2nd, A case related by Ogle, in which, after healing of an abscess in the neck, frontal headache, as well as vaso-motor and oculo-papillary symptoms, supervened; also a case of gun-shot injury to the sympathetic, related by Mitchell, Morehouse, and Keen.

Holst sought to introduce a galvano-therapeutic treatment, after observing its effects upon the several varieties of megrim, in a methodical manner. In hemicrania sympathico-tonica, he recommended the anode to be placed on the sympathetic nerve, the cathode at the handplate, and after two or three minutes the current to be gradually shut off; on the other hand, in the paralytic form, he recommended the cathode to be placed upon the nerve, and the current to be repeatedly opened and closed. The first method, he asserted, would cause a lowering of the irritability, and the latter a powerful stimulation of the nerve. For the above action of the anode, Dr. Berger thinks there is no physiological warrant; his own observations on the galvanic treatment in hemicrania sympathico-tonica have hitherto led to no certain results.

Eulenburg and Guttmann (in Germany) recommended, in the paralytic form, liquid extract of ergot, to cause contraction of the vessels through the vaso-motor centres; and this treatment has been tried with success by Woakes (in England). The otherwise unexplainable loose motions coming on at fixed hours, may be explained on the supposition of a paralysed state of the vaso-motor nerves of the alimentary canal.

The author finally gives the particulars of three other cases of hemicrania sympathico-paralytica. The chief interest of the first consists in the attacks having originated after exposure to a scorching sun. The pain in the head was followed by vomiting and purging, with abdominal pain. In relation with these phenomena, Berger mentions the opinions of physiological authors. For instance, according to Pincus and Adrian, section or extirpation of the abdominal sympathetic plexus causes disturbance of the circulation (hyperæmia and extravasation) and sometimes interference with nutrition (ulceration). According to Budge and Samuel, diarrhœa occurs after extirpation of the cœliac plexus; while, on the other hand, Pincus affirms that paralysis of the vaso-motor nerves produces rather a diminution than an increase of the intestinal secretion. Moreover, Brunner declares that the attack of megrim frequently ends with vomiting and diarrhœa, and concludes from this, that beyond the cervical sympathetic the solar plexus is likewise affected. The points of interest in the second case lie in the fact of both forms of megrim being present in the same individual, and the abundant salivation. The chief interest of the third case consists in the marked hereditary tendency to nervous disease.

J. B. BRADBURY, M.D. (Cambridge).

THE INTERNATIONAL SANITARY CONFERENCE IN VIENNA.*

(Concluded from page 495.)

III. *International Commission on Epidemic Diseases.*

With regard to the formation of an International Commission on Epidemic Diseases, the Conference recognised fully the value and necessity of such a commission, especially with regard to cholera. The following are the most important of the propositions on this subject agreed to by the Conference.

'An International Epidemic Commission should be organised. It should be permanent, and have its seat at Vienna. Its members should consist of delegates from all the Governments taking part in it, partly medical men and partly lay officials. A president should be chosen from among them as representative of the Commission, to correspond directly with the different Governments, and eventually with the various sanitary boards. The International Commission should be independent in its scientific labours, but administrative questions should be decided by a majority, every State having a vote in all final decisions. The ordinary routine of business should be settled by the Board itself. The Commission should be bound to communicate to their respective Governments the results of their scientific and administrative labours. The necessary computations of cost should be made by the Board and submitted to the respective Governments. The expenses should be covered by the contributions of the different States, and eventually by receipts. The sum total required should be apportioned among the different States with reference to the numbers of their population and the tonnage of their commercial fleet. The objects of the International Epidemic Commission should be the furtherance of the study of epidemics among mankind; proposals for the erection and administration of quarantine establishments; professional opinions in answer to inquiries from any Governments represented in the Commission, the arranging of international sanitary conferences as often as necessity requires, and the drawing up of their programmes. Where epidemics are constant, permanent stations should be established, and, where they exist only for the time being, temporary arrangements should be made for the study of the epidemic on the spot, and inquiry into means of protection from it. In the same manner, during any great epidemic, arrangements should be made to follow it from place to place, with the object of studying the laws of its dissemination. For those territories which have no organised sanitary service, such epidemic stations should be established with the consent of the Governments to which they belong on the principle proposed by the International Commission of assisting such countries in times of severe epidemics. The international epidemic stations should be subject to the Commission. Their *personnel* should be appointed by them with the consent of those States on whose territory their labours are carried on. The present arrangements to last for ten years. The revision of separate details on the motion of any of the States concerned, or by a vote of an international conference, to be reserved.'

The last subject which the Conference took into

consideration was yellow fever. As it had already declared that the International Commission on Epidemic Diseases should not concern itself merely with cholera, but also extend its attention to other epidemic diseases which are spread by human intercourse, it merely remained to express the opinion that the same regulations (inspection or quarantine) should be adopted by individual States in regard to yellow fever as in regard to cholera. For the promotion of the study of the etiology of yellow fever, the Commission recommended a continued and sufficient investigation of the outbreak and spread of the disease on board ships coming from places infected with yellow fever. These researches should be carried on in the same way as with cholera.

The concluding meeting of the Conference was held on August 1. The President gave a summary of the labours of the Conference, after which the conclusions arrived at were signed by all the members. Baron von Orczy, of the Austrian Foreign Office, then addressed the members of the Conference as follows.

'Allow me, gentlemen, to make myself the interpreter of the sincere regret which His Excellency the Minister for Foreign Affairs feels in not being able personally to thank the Sanitary Conference for the enlightened and unceasing zeal which it has manifested during its labours. Commissioned by him to be his representative here, I esteem myself fortunate in being able to discharge a pleasant duty, when I express, in the name of His Majesty the Emperor and King, my illustrious master, the complete satisfaction which his Government has felt at the results of your deliberations. Indeed, His Majesty's Government can only wish success to the work of the Conference, as it is not only in itself the first step to a general undertaking, but at the same time may be regarded as the foundation of future diplomatic transactions. The hope appears to be well founded that these transactions, resulting as they will from the final conclusions of two separate sanitary conventions, will secure a true practical value to your labours. One of these conventions has aimed at the establishment of a greater uniformity in fundamental regulations and prophylactic measures—at least between the two groups of States which will hereupon adopt the same system of protection against cholera. The other gives the imperial and royal Government reason to hope to be able to see in the early future the realisation of the idea of a permanent international sanitary commission, of which you have given the first outline, and which will have to be as a connecting link between the learned and the official sanitary organs of the various countries of the civilised world. As the Government of his majesty the Emperor and King intends to communicate by circular letter with all the Governments represented in this Conference, and to utilise, for the obtaining of clear and precise stipulations, the landmarks erected by your endeavours, the Government will be greatly obliged to you, gentlemen, if each of you in your respective Governments will afford your practical support to the work to which you have devoted your judgment. You are in a better position than any one else to forward an affair which has indeed become your own. Allow me to give you the assurance that, should you be inclined to afford me your enlightened attention and care as hitherto to the great questions of humanity which you have taken in hand, you may at any time count on the active support of my Government. I have had the

* From the *Allgemeine Medicinische Central-Zeitung*.

pleasing duty of offering you an expression of most lively gratitude; I now renew the expression, and declare the session of the second international sanitary conference closed, and I beg you at the same time, at the moment when each of you returns to his home, to accept my best wishes.'

Dr. Fauvel then expressed the thanks of the Conference to the president, Baron von Gager; and Dr. Lenz thanked the Austro-Hungarian Government. Baron von Gager having briefly replied, the session of the Conference came to an end, its meetings having extended over the whole month of July.

ANATOMY AND PHYSIOLOGY.

GREVE ON THE ACT OF VOMITING.—Carl Greve (*Berliner Klinische Wochenschrift*, July, 1874), says that, although the experiments of several physiologists, and especially those of Magendie, seem to prove that the stomach is entirely passive during vomiting, and that the expulsion of its contents does not depend in the least on the contraction of its walls, yet numerous others still assign to it a more or less active rôle. The existence of a nervous centre for the act of vomiting, its situation and the nervous communications connected with it, being all more or less uncertain, Greve undertook some experiments to settle the disputed question. He made use of apomorphia, which he finds to be the most certain and speedy of emetics, and accompanied by far fewer concomitant and subsequent effects than any other. Vomiting occurs after division of the vagi. The negative results obtained by Quehl in this respect were due to his having tied the dogs experimented on upon their backs, in which position they hardly ever vomit except when their stomachs are full. When dogs have emptied their stomachs in the morning by violent vomiting, they will not vomit in the afternoon when tied either upon their backs or bellies, but will do so at once if set free and an emetic administered. They vomit more easily when placed on their bellies than on their backs. After the injection of apomorphia apnoea cannot be produced; and, *vice versa*, when vigorous artificial respiration is kept up, it counteracts the emetic power of apomorphia. The centre for vomiting is identical with or close to the respiratory centre. The nervous path along which the irritation is propagated from the vomiting centre to the organs concerned in the act, lies in the spinal cord as far as the sixth dorsal vertebra. When the cord is divided below this point vomiting still occurs, but not when the point of section is above this vertebra. The stomach takes no part whatever in the act of vomiting.

T. LAUDER BRUNTON, M.D.

SCHUTZENBERGER ON COMBUSTION IN THE ANIMAL ORGANISM.—The researches of MM. Mathieu and Urbain establish clearly that fresh arterial blood, preserved at a temperature of 98°6' to 104° Fahr., consumes the oxygen united to the hæmoglobin with extreme slowness. Schutzenberger finds that oxygenised blood, preserved also at a temperature of 98°6' Fahr., loses its oxygen very slowly while the blood is fresh; but that, when putrefaction sets in, the loss is very rapid. This he considers to bear out the generally admitted principle that these combustions take place especially in the depth of the

tissues. These organic tissues act by their cells on the oxygen as do the cells of the yeast of beer. It is well known that the yeast of beer possesses the property of absorbing oxygen, with production of carbonic acid. Schutzenberger has investigated the absorbent power of yeast, and says that he has discovered some of the principal laws. Great similitude, from a chemical point of view, exists between the products elaborated by yeast and those formed in the tissues of the animal organism. This similitude led him to the idea of transforming arterial blood into black venous blood by analogous means, transformation quickly and successfully effected.

PAGET HIGGS, D.Sc.

BENEDIKT ON THE INNERVATION OF THE PLEXUS CHORIOIDES INFERIOR.—M. Benedikt (*Virchow's Archiv*, vol. lix.) describes, as existing in the inferior choroid plexus of man, nerve-twigs ending partly in the epithelium, partly in the vessels. These nerves arise from a nucleus lying in the medulla oblongata to the outer side of the olivary body, and connected with the so-called lower nucleus of the vagus nerve. The cells in this nucleus are partly sensory, partly vaso-motor; and Benedikt concludes, from the observations of Betz, that cells of the same kind exist elsewhere, and send processes to the vessels of the central nervous system.

DALTON ON THE SPECTRUM OF BILE.—Dr. J. C. Dalton recently read before the New York Academy of Medicine (*New York Medical Journal*, June, 1874) a paper in which he discussed, first, the spectrum presented by fresh bile, which depends on the presence of its normal colouring matters; and, secondly, the spectrum presented by the coloured fluid of Pettenkofer's test, which depends for its production on the presence of the biliary salts. He gives the results of a series of observations on the spectroscopic characters of a number of different specimens of bile as follows. 1. The spectrum of bile is characterised, as a general rule, by an absorption-band at C. 2. The existence and intensity of this band are proportional to the predominance of green in the colour of the bile. 3. The spectrum of bile is also distinguished by a diminution or absence of the orange and yellow, and a corresponding extension of the red and green. 4. There are sometimes also two other absorption-bands, comparatively uncertain and ill-defined, at D and at D 30 E. 5. The pure biliary salts in alcoholic solution, treated by Pettenkofer's test, give a spectrum with absorption-bands at E and F. 6. In a watery solution, treated by the same test, they give a spectrum with but one absorption-band, namely, at E.

BOWDITCH AND MINOT ON THE INFLUENCE OF ANÆSTHETICS ON THE VASO-MOTOR CENTRES.—In an interesting investigation on the influence of anæsthetics on the vaso-motor centres, Dr. H. P. Bowditch and Charles S. Minot deduce (*Boston Med. and Surg. Journal*, May 21, 1874) the following conclusion as possessing a high degree of probability.

'While ether and chloroform resemble each other in their effect on those nervous centres whose activity is connected with the conscious perception of pain, the latter acts much more strongly than the former upon those centres which regulate the arterial blood-tension, and thus affects profoundly the conditions of animal life. Ether and chloroform

are, therefore, both anæsthetics, but chloroform is also something more.'

ONIMUS ON GENERATION OF PROTO-ORGANISMS IN MEDIA FROM WHICH GERMS OF AIR ARE EXCLUDED.—M. Onimus describes in *Comptes Rendus* (July 20) his experiments on the changes undergone by albuminoid substances in the presence of air deprived of its germs. He says:—

Our process was that of introducing blood or the white of an egg directly into a vessel, to which air could only come through a thick layer of carded cotton or amianthus.

The apparatus we used consisted of a globe of glass closed with a caoutchouc stopper, through which passed three metallic tubes. Two of these tubes ended exteriorly in a stopcock for maintaining a vacuum, and a cylinder seven centimetres long, into which the cotton or amianthus was put. The third tube was also terminated by a stop-cock, with a trocar at the end of it, constructed so that one could prevent entrance of air throughout the length of the tube.

The mode of operating was this. We introduced into the glass globe about 300 to 350 grammes of water, two grammes of phosphate of ammonia, and 50 centigrammes of chloride of sodium. We close the vessel with its stopper, and boil the liquid half-an-hour at two different times. The steam escapes by the three tubes, the cocks of which are open; it chases out the air, and destroys by heat the germs which may be present. We close the cocks during ebullition, and let the apparatus cool. A vacuum is formed in the globe, and this vacuum remains complete as long as we wish; which shows that the exterior air cannot enter by any interstices which might, at the same time, allow the entrance of germs.

When the liquid is completely cooled we introduce the trocar, after heating it, into the vena cava or the heart of a rabbit, and open the cock of this tube. The blood is immediately sucked in by the vacuum in the globe, without coming into contact with air. When a few drops of blood have thus been received, the cock is closed.

To introduce white of egg (an experiment quicker and more easy), we have taken eggs that were quite fresh and intact. After washing the shell with sulphuric acid, we have covered it with collodion at the part where the trocar is inserted, so that there cannot enter the least bubble of air between the trocar and the egg-shell.

Lastly, to admit the air deprived of its germs, we open the cocks of the two other tubes; the air comes into the globe after traversing a thick layer of carded cotton. To make more sure of the destruction of the germs, we heat the two cylinders filled with carded cotton; and this also causes evaporation of the steam, condensed during the boiling of the water. In some experiments we replaced the cotton with amianthus, in order that we might maintain a higher temperature.

A small suction-apparatus allows the renewal of the air from time to time; a condition that is important for the results of the experiment.

We have thus, then, in a closed space, a liquid which, by boiling, has been deprived of its germs, and into which have been introduced albuminoid substances, without any alteration, which have not at any moment been in contact with the exterior air; and the whole is kept in presence of an air which, before entering the globe, had been sifted by

a thick layer of carded cotton, or of amianthus, heated to a high temperature.

With these conditions, nevertheless, vibrions and bacteria have always developed in this liquid in a few days.

After three or four days, with a temperature of 68° to 86° Fahr., the liquid is slightly troubled; but at this stage we merely find a greater or less number of molecular granulations. It is only about the eighth or tenth day that we can discover mobile granulations, some vibrions and small bacteria.

On exposing to free air a liquid of the same composition as that enclosed in the vessel, and comparing the two liquids, we find that the liquid in the globe is altered much more slowly than the one which has been exposed. The vibrions and bacteria are never nearly so numerous. The proto-organisms of the liquid in the globe are much paler, and less mobile; their movements become more rapid when we agitate them some time with air.

The liquids enclosed in the globes never have the odour of decomposition or of putrefaction.

Out of fifteen experiments which we made, there were only two in which, after ten days, we did not find bacteria. In one of these cases, we had added to the liquid a considerable quantity of sugar; in the other, we had only succeeded in introducing one drop of blood.

The proto-organisms are more numerous, the larger the quantity of albuminoid substances introduced.

We believe it may be inferred from these experiments that proto-organisms may arise and be developed in albuminoid substances protected from air.

ALEX. B. MACDOWALL.

PATHOLOGY.

LEGGE ON THE LIVER IN JAUNDICE.—Dr. J. Wickham Legge has reprinted a paper on this subject from the *British Medical Journal* of May 9 and 16.

After reviewing the etymologies of jaundice and its synonyms, he remarks that the first effect of an obstruction in the bile-ducts is dilatation behind the obstruction. Should the obstruction be in the common duct, it is the gall-bladder which suffers at first. It may become enormously dilated, and be mistaken for ascites. In Cline's case, a male, aged sixteen (quoted by Andree, 1788), the gall-bladder, after tapping, contained half a gallon of bile, and reached from liver to pelvis. Van Swieten records a case of a boy, aged twelve, whose gall-bladder contained 8 lbs. of fluid. This bile may become absorbed, and a colourless fluid take its place, as often happens with gall-stones, constituting hydrops vesicæ fellææ, first noticed by Glisson, 1681. This fluid sometimes contains albumen, sometimes not. Ritter (*Comptes Rendus*, 1872, tom. lxxiv. p. 813) states that some of these fluids contain all the constituents of bile, except the pigment. General experience, however, is that the bile-acids also are absent. This was the case in two examinations made by Dr. Legge. It has been thought that the liver ceased to secrete bile, in cases where the larger ducts are found filled with colourless fluid. Dr. Legge says that bile could be found in the small ducts in a case of this kind recently examined by him. Oskar Wyss's experiments on dogs (*Archiv der Heilkunde*,

1867, p. 469) are instructive in this point of view. He first made biliary fistulæ, and then poisoned the dogs with phosphorus. Though little or no bile flowed from the fistulæ, the dogs became jaundiced. It seemed as if the liver ceased to secrete bile, but it was found that the openings of the smaller ducts into the larger ones were plugged with tenacious mucus, hindering the flow of bile into the larger tubes. Ebstein has noticed the same fact in patients poisoned by phosphorus. The ducts outside the liver often become as large as the middle finger. In animals they are often tortuous, after they have been ligatured. Sometimes the dilated ducts may be mistaken for tumours. Traffelman's case (quoted by Schenk) is often misquoted: He states that in the body of Daniel, Archbishop of Mainz (died 1582) the bile-ducts were found filled with gall-stones, and dilated 'instar utriculi.' Morgani quoting this, changed the last word into 'ventriculi,' and this mistake is still copied. Of modern instances, one quoted by Dr. Halliday Douglas (*Monthly Journal of Medical Science*, Edinburgh, 1852, vol. xiv. p. 97), is of dilatation of the common duct in a girl aged seventeen. By tapping, thirty ounces of fluid were taken away, but nearly half a gallon of yellow fluid was found after death.

The ducts within the liver are often greatly dilated, though the proper parenchyma of the liver prevents such extreme dilatation as that of the exterior ones. In cases seen by Dr. Legge, the dilatation has been uniform or cylindrical. Virchow says it is sometimes saccular, or cystic (*Die Krankhaften Geschwülste*, Band i. p. 254). These dilatations may be as large as a cherry or walnut, and may closely resemble a small echinococcus cyst, only they have no membranous wall. Friedreich (*Archiv für Path. Anat.*, Band xi. 1857, p. 466), describes a cyst, which he believed to be a dilated gall-duct. He found well-marked ciliated epithelium. Dr. Legge thinks this case unique, though in some animals this epithelium is ciliated during the whole of life. He has met with no second case like that of Boismont (quoted by Abercrombie), in which the liver had the appearance of a large undulating cyst, due to distension of all the biliary vessels with dark bile, and wasting of the proper substance of the liver. There was a singular obstruction of the common duct by a membranous band passing over it. Large ducts often open into hydatid cysts and abscesses. Their contents do not help much in the diagnosis. The laminated wall of the hydatid cyst is diagnostic. Joffroy, speaking of abscess, says that no columnar epithelium is found in the limiting membrane of the abscess, but liver-cells are found in various stages. Dr. Legge says if we suspect that we have to do with a dilated duct, and wish to find this columnar epithelium, we must neither wash nor rub the specimens. In ducts measuring four millimètres ($\frac{1}{4}$ inch) he found it easily; not so in those whose diameters were ten millimètres (nearly $\frac{1}{2}$ inch). He says the left branches of the hepatic duct have been more dilated than the right in his cases—probably from the less resistance of the left lobe of the liver. Catarrh due to obstruction often goes on to supuration—the abscesses induced are often multiple. Cruveilhier seems to have been the first to notice this. The abscesses are rarely larger than a hazel-nut. Their mode of origin is disputed.

The liver itself, in cases of obstruction, first increases in size, becomes of a deep olive green colour, and the surface becomes granular. It soon begins to

waste, if the obstruction persist. In all cases of long-continued obstruction, the connective tissue grows, starting from the point of obstruction. In animals Dr. Legge has known the liver to become intensely cirrhotic in fourteen days from the application of a ligature to the bile ducts. [See his paper in *St. Bartholomew's Hospital Reports*, 1873, vol. ix. p. 161.] This overgrowth of the connective tissue was recognised by some of the older pathologists (Albers and Andral). Their changes in the liver cells are less striking. They do not always suffer fatty infiltration, as Leyden taught. Their chief change is atrophy, sometimes becoming only about twice the size of a leucocyte. Dr. Legge finds that in cats all glycogen disappears in a few days after ligature of the ducts, and after the fifth or sixth day glycosuria cannot be set up by irritation of the fourth ventricle. Golowin (*Archiv für Path. Anat.*, 1871, vol. liii. p. 433) states that the bile acids are no longer secreted, when jaundice has been of long duration. This requires confirmation. As regards urea, Dr. Legge has several times found the excretion of this substance to be normal in quantity in complete obstruction of the gall-ducts. Gscheidlen's experiments (*Studien über den Ursprung des Harnstoffs im Thierkörper*, Leipzig, 1871) render the formation of urea and uric acid by the liver doubtful.

In some of these cases the liver-cells seem quite destroyed. The cause of this is doubtful. Dr. Legge thinks Oskar Wyss in error in calling this a *post mortem* change. Bile renders the outline of the cells indistinct, but colouring matters restore it. He has often kept livers some days, without preservative fluids, and could see the cells easily in this way. It is probable that the circulation of blood containing biliary acids may, like other poisons, and like raising the natural temperature of the body (*Trans. Path. Society*, 1873, vol. xxiv. p. 266) produce degeneration of tissues, and perhaps solution of the liver-cells. This appearance, however, is seldom met with, except in acute yellow atrophy, and wants further authentication.

[Dr. Legge's paper contains many valuable references to papers on diseases of the liver, besides those which we have quoted.—*Rep.*]

W. BATHURST WOODMAN, M.D.

POLLARD AND LOCKHART CLARKE ON SUBACUTE DIFFUSE GENERAL SPINAL PARALYSIS.—The following case of this form of disease of the spinal cord is related by Dr. F. Pollard in the *St. Thomas's Hospital Reports*, 1872; the clinical history being supplemented by Dr. Lockhart Clarke's microscopical examination of the spinal cord. The result of which is, we may here note, that the case should be designated one of 'subacute diffused myelitis.'

F. A., a married woman, aged forty-nine, was admitted June 13, 1872. She had had three children, but none for twenty-two years. Her general health had been good until ten months before admission, and there was no history of any blow or fall. At the time mentioned she had a severe cholera attack. The paralytic symptoms commenced a few weeks after this attack, when she noticed that her legs were becoming weak, and seemed to give way under her. The paralysis of the legs increased. Some time afterwards the right arm became enfeebled, and during the two months previous to admission the left arm. She had been subject to cramp-like pains in the back and limbs during the whole time.

On admission, the patient was unable to walk or stand. She could move her legs about in bed to some extent, but stiffly, and with pain and effort. There appeared to be entire loss of cutaneous sensibility in the thighs, legs, and feet. Reflex movements were easily excited. The arms were very weak, the forearms being more affected than the upper arms. She could just raise her hands to her face, but the hands themselves were quite powerless and entirely devoid of squeezing power. Sensation in the hands and forearms was much deadened. The arms and legs were extended and somewhat stiff; they appeared to be much wasted. She complained of frequent pains in the back and limbs, and it caused her much pain if her limbs were moved about or she were turned over on her side. She was quite unable to raise herself in bed, or to turn over without assistance. There was a good deal of tenderness over the sacral and lumbar vertebrae, and to a less extent all along the spine. The urine was occasionally passed involuntarily, and the bowels were much confined. *There appeared to be no signs of mental alienation, no facial or lingual paralysis, no affection of sight or hearing, and the pupils were natural.* While in the hospital the patient became progressively weaker, the legs became powerless, they were often involuntarily drawn up or crossed over each other. The arms and fingers were always extended. Galvanism was tried—the muscles of the limbs seemed to act fairly when the current was passed through the main nerves of the limbs, but very feebly when localised.

This case continued to become worse, with increasing rigidity of limbs and occasional wandering of the mind, and she died in September of the same year.

Dr. Lockhart Clarke describes fully, as follows, the morbid changes in the spinal cord and medulla oblongata removed from the case of subacute diffuse general spinal paralysis. In the *conus medullaris* and the lower two-thirds of the lumbar enlargement, nearly the whole of the anterior grey substance was softened, and in some places quite pulpy. The superficial portions of the posterior columns was in a similar condition. In the upper third of the lumbar enlargement the grey substance was not much altered, but the surfaces of the posterior columns were softened to a considerable degree, and sclerosis, or destruction of the nerve-fibres, with proliferation of the connective tissue, extended deeply through these columns, nearly to the surface of the transverse commissure. The sclerosis, however, was limited chiefly to the wedge-shaped strands on each side of the posterior fissures. This morbid change was everywhere accompanied by an innumerable multitude of compound granular corpuscles of different sizes, by oil-globules, and great increase of connective tissue.

Softening and disintegration was observed in the dorsal region, both in the grey matter and in the posterior white columns, the sclerosis of the posterior strands being still more marked at the tenth dorsal vertebra than it was below, and had extended to the lateral columns. Above this level the sclerosis of the posterior strands was still more marked, as was also the softening of the surface of the columns, more especially anteriorly, and the whole of the anterior grey substance. The pia mater over the posterior columns was considerably infiltrated and thickened.

In the cervical enlargement the grey substance was very little affected, but the posterior and lateral columns were more severely damaged here by sclerosis, than in the inferior regions of the cord.

In the medulla oblongata the posterior cuneiform strands were entirely destroyed below the points of the anterior pyramids. The change extended over the *caput cornu posterioris* to the lateral columns. The sclerosis affected similarly the surface of the restiform bodies and posterior pyramids, continuously with the posterior wedge-shaped strands.

In all the sclerosed parts the blood-vessels had lost their natural structure, and were frequently severed into small fragments by progressive disintegration.

The nerve-cells that were not destroyed by the inflammatory action were somewhat altered in appearance. They contained more brown pigment than usual, and were in the first stage of disintegration. The whole of the changes are considered by Dr. Clarke to have resulted from inflammation of the substance of the spinal cord.

[Before concluding our report of the above case, we would call attention to the want of precision that prevails in our use of the term 'general paralysis.' It may suffice for the present purpose to point out that the case before us is selected from several in a paper entitled 'Varieties of General Paralysis,' of which Dr. Pollard has enumerated twelve. It would be beyond our objects critically to analyse the characters of these, but to any one who may consult the memoir itself it will be obvious that to only a few of them can the term 'general' be strictly applied, and then with qualifying epithets. In this country, the term general paresis, or paralysis, is usually confined to one form of mental disease, since paralysis sooner or later makes itself apparent in the group of morbid phenomena. The forms of this kind of 'general paralysis' may be as numerous as the individuals. Our continental brethren are more precise in their nomenclature, and speak definitely of 'general paralysis of the insane,' or of 'encephalite interstitielle diffuse.' Other forms of paralysis should be defined as reflex, spinal, progressive, ascending, (of which the above case may be taken to be an instance) diffused, ataxic, etc. The several pathological conditions giving rise to the several distinct forms of paralysis could, of course, be made the basis of further classification, not, however, always available for practical purposes, since the structural lesion may be obscure, and only discoverable after death. We are largely indebted to Brown-Séquard, Duchenne, Charcot, Vulpian, and others, for their labours in the direction of precise pathological definition.—*Rep.*]

W. B. KESTIVEN.

SMITH ON FATTY DEGENERATION OF THE HEART IN YELLOW FEVER.—Dr. Bat Smith, of Mobile, offers an explanation of the process of 'true fatty degeneration of the muscular structure of the heart,' which he describes as present in the majority of fatal cases of yellow fever (*New Orleans Medical and Surgical Journal*, May, 1874). The author points out that this morbid change is due to a perverted nutrition, continuing for a longer or shorter period; and, in the case of yellow fever of a malignant character, he finds the source of this functional disturbance in a pathological condition of the sympathetic. In all the cases of yellow fever which he has examined, *post mortem*, during the last two years, Dr. Smith has found very evident active congestion of the sympathetic ganglia, throughout the whole extent of the chain.

The sympathetic possesses nutritive vasomotor functions, and a heavy congestion will be the con-

sequence of a general impairment of the physiological condition of its centres. Impaired aëration of the blood follows, expressed by fatty degeneration, and the heart, being the hardest-working muscle of the body, will be the first to suffer.

Dr. Smith is inclined to ascribe the high temperature of yellow fever and the hæmorrhagic tendency observed in it, in part at least, to the same paralysis of the ganglionic chain of the sympathetic.

J. MITCHELL BRUCE, M.D.

PERLS ON INTRAUTERINE FIBROMA OF THE ORBIT.—At the sitting of the Königsberg Society of Medical Science, on February 9 (*Berliner Klinische Wochenschrift*, July 20), Herr Perls demonstrated, as a contribution to the causation of growths developed in utero, a case of fibroma of the orbit, with infiltrating ostitis of the roof, and a fibromatous thickening of the dura mater. The case occurred in the practice of Herr Loch, of Danzig. The infant was born with marked exophthalmus on the right side, and died within twenty-four hours.

The external upper half of the cavity of the orbit was filled with a rounded smooth solid mass, about two inches in diameter, thicker behind than forward. The periosteum was lost in the mass of the tumour. The external rectus passed over it, separated from it. A transverse section displayed a very hard smooth fibrous surface, chiefly of an opal yellow, in places of greyish-green colour. The lacrymal gland was absent. Under the microscope it presented a hard fibrous structure, with a few cells; chiefly, however, composed of fine fat-molecules and a few vessels. In places there were small bunches of fat-globules. The dura mater exhibited a small round thickened spot, about the size of a sixpence; its upper surface was not smooth, but uneven, and beset with fine proliferations of areolar tissue. When the dura mater was stripped off, it was about two millimètres in thickness, and of a very hard thick fibrous consistence, of a greenish-grey colour on section. The place where the dura mater was attached presented a somewhat crumbling soft irregular surface, and a portion was adherent to it. The under surface, with which the tumour was connected, exhibited a similar condition. The separation from the bones both of the dura mater and tumour was easily effected, and its surface appeared on both sides partly finely and partly coarsely fibrous. The pores were covered and filled up by a soft tissue in most places. The middle portion of the orbital roof was very thin and fragile, and showed several small irregular holes permeating its whole thickness, equally filled up with the soft tissue. This soft tissue presented the small cells and vascularity of a granulation-membrane, and the surfaces of any section showed the bones to be more or less infiltrated with this material, and that principally in the lacunæ (Howship's). On colouring with carmine, the membrane that filled up these lacunæ was found to consist in part of small cells, or large cells containing many nuclei, whose form often exactly corresponded with the depressions in the remaining bone-substance. The structure of the bone everywhere beyond these lacunæ was normal.

Herr Perls remarked on the extreme rarity of any growth occurring during intrauterine life, except dermoid cysts and erectile tumours. He believed this to be an unique preparation. Whether the preparation in the Göttingen Collection of an enormous (osteogenous?) fibroma on the scalp of a child was

intrauterine or not, was not evident from the description given by Förster.

W. C. GRIGG, M.D.

MATERIA MEDICA AND THERAPEUTICS.

DOBELL ON A NEW REMEDY FOR HAY FEVER AND SNEEZING.—Dr. Horace Dobell writes thus in the *Pharmaceutical Journal* of June 27.

At this season of the year, when 'sneezers' and sufferers from 'hay-fever' are in the depths of their miseries, it is merciful to make public any reasonable suggestion for their relief. I have, therefore, much pleasure in being able to bring forward a little contrivance and a prescription, by the combined use of which immense comfort may be given to many sufferers.

The prescription is as follows:—

| | |
|---|------------|
| Chloral hydrate and camphor (of each). | 16 grains. |
| Carbolic acid | 20 „ |
| Pure morphia | 12 „ |
| Oleic acid (enough to dissolve the morphia) . | 20 „ |
| Castor oil (the clearest and finest) | 7 drachms. |

Rub well together to make a lotion.*

The 'contrivance' is for the efficient application of the above remedy, and consists of a miniature bottle contained in a little box-wood case, so that it can be carried easily in the pocket. To the lid of the box is attached the cork of the bottle, and to the cork, in the same fashion as the spoon of a cayenne-pepper cruet, is fixed a little club-shaped rod of polished ivory, long enough to reach to the bottom of the bottle, and also to the upper extremity of the nostril. The little bottle is kept half full of the lotion above prescribed, and the little rod immersed in it. Directly the patient feels the tickle or other signal of a coming sneeze, he uncorks his bottle, withdraws the ivory club, wet with the oleaginous lotion, and gently pushes it up the nostril till it reaches the seat of the sneeze-signal; there it should be gently pressed so as to apply the lotion to the part. After this the club is withdrawn and returned to its little bottle of fluid, where it becomes at once charged for a fresh application. As often as the sneeze threatens, the operation should be repeated. Very often one application will keep off a threatened fit of sneezing altogether, even though its first effect may be to excite a sneeze.

I have requested Messrs. Savory and Moore to keep this little appliance ready-made and charged with the lotion, so that it can be sent by post without difficulty or delay. It has been of so much comfort in cases within my own practice, that I am sure it is worth while for any one who has not yet found a remedy to give it a trial.

In cases accompanied by much throat-irritation, it is advisable to combine with this treatment the use of the 'Lozenges for Postnasal Catarrh,' prepared from a prescription formerly published by me (*On Winter-Cough*, etc., 2nd edition, p. 204), and always kept ready-made by Bell, Savory, Squire, Corbyn, Hanbury, and other leading chemists.

I may add that, when there is great prostration,

* As different perfumes affect different patients peculiarly, no scent is added in this formula; but anyone who prefers it, may have it scented by the addition of whatever perfume is known to suit best.

and a tonic is required, tincture of eucalyptus globulus will sometimes answer better than quinine, especially if there is much feverishness.

None of these remedies should be used without consulting the doctor in attendance on the case.

DYER ON PODOPHYLLIN FOR ACUTE RHEUMATISM.—Dr. R. F. Dyer, of Ottawa, Illinois, writes in the *American Quarterly Journal of Medical Sciences* for July, 1874, that about five years ago he accidentally discovered that the active principle of Podophyllum peltatum promptly relieved the pains in acute rheumatism. He usually follows it with 'alkaline treatment,' and, if the pains return, recurs to the podophyllin. He commences with light doses combined with Dover's powder, at intervals of two or four hours, until the bowels are moved very freely several times. In some cases he has given it in divided doses for three days before it took effect. The more severe the case, the more is required. Sometimes two or three evacuations relieve; at other times, eight or ten are required. After the bowels are evacuated, if relief be not obtained, he continues the use of the medicine in divided doses, not large enough to produce vomiting. If the pain return in two or three days, he repeats the treatment. He had thought that perhaps it was the free purgation that afforded relief; but, upon trying active catharsis from other remedies, he is fully satisfied that there is some specific influence exerted by the podophyllin.

OBSTETRICS AND GYNÆCOLOGY.

PETER ON PUERPERAL DISEASES.—Dr. Michel Peter, in an article in *La France Médicale* for June, 1874, treats of the causes of puerperal convulsions and their cure. The convulsive movements are the result of uræmic poisoning, which may arise either from long-standing kidney-disease—the excretory action of the kidneys being still further diminished during the process of gestation by the pressure of the gravid uterus on the renal veins, or from congestion of the kidneys through pressure where no previous disease has existed. Should this condition be allowed to remain any length of time, it will eventually lead to permanent structural changes of the kidneys. This is shown by the fact that eclampsia at the fifth month is a comparatively mild affection, but the nearer it approaches to the end of gestation the more formidable does it become. The uræmic renal hyperæmia is in a more advanced stage at the ninth than at the eighth month, and at the seventh than at the sixth month. The treatment should be to relieve the congestion, which is best effected during the progress of an attack by free bleeding, so as to make an impression on the general circulation, and by relieving the arterial tension to produce a contraction of the vessels of the kidneys. The ex-traction of blood has equally as great an effect upon the arterioles of the kidneys as on those of the brain or skin. Bleeding is not only a most powerful agent in the arrest of convulsions; but also, by relieving the congestive condition of the renal organs, leads to their cure. Whether the state of the kidneys be one of advanced disease, or of merely temporary congestion, the treatment should be the same. In the latter instance, it effects a permanent cure; in the former, it places the woman in the best position for prolongation of life.

When one bleeding has succeeded in arresting the fits, but has left the patient in a comatose state, the operation should be repeated, which is best done by means of leeches behind the ears. This method of free and repeated bleedings is advocated by Stulz, Dubois, Depaul, and Cazeaux.

Chloroform, although a very potent remedy to arrest the attacks, cannot from the pathology of the affection cure it. In the same position stands chloral. The inhalation of chloroform is by no means devoid of danger in certain stages of eclampsia. When the face is cyanotic, indicating pulmonary engorgement, the stupor produced by it but intensifies the toxic effects of the uræmia, and hastens the death of the patient. This the author has seen in more than one instance. Again, even when it has succeeded in relieving the fits, the patient has invariably aborted shortly afterwards from the effect of the unrelieved uræmic poisoning.

[The reporter cannot approve of the estimate here formed of the efficacy of chloroform and chloral in eclampsia. He has had several opportunities of seeing a combined treatment of chloroform, chloral, and opium in the several forms of this affection. The results in every case have been good. The amount of albumen in the urine in all cases was great, and in one it became almost solid on boiling. During convalescence, the albumen entirely disappeared. The cases were primiparæ. The only fatal case which the reporter has witnessed was where bleeding and ice-bags to the spine were employed. In the above-mentioned cases there was no œdema of the legs or any signs of anasarca; whereas, with extensive œdema of the legs, and in two cases of universal anasarca, there was no eclampsia. The reporter is inclined to believe that the effusion of serum into the cellular tissue, instead of being regarded as a sign of danger, should be viewed as a remedial measure, and as indicating a favourable prognosis rather than the reverse.—*Rep.*]

W. C. GRIGG, M.D.

SCHURIG ON CÆSAREAN SECTION.—Dr. Fritz Schurig gives (*Fahresbericht der Gesellschaft für Natur und Heilkunde, and Philadelphia Medical Times*) an account of this operation, as performed by him on a patient thirty-seven years of age, in whose case safe delivery was impossible by reason of a condition of osteomalacia. The procedure was as follows. An incision, six inches in length, was made in the line of the linea alba, when the uterus presented itself in a condition of complete ante-version, with the ovarian ligament and the broad ligament protruding through the wound. Afterwards the uterus was turned, and, being pressed against the abdominal walls by an assistant, was also opened by an incision. The placenta proved to be attached anteriorly, and after its removal the living child was seen lying with its buttocks forward, and with the head somewhat turned to the left, owing to its unfavourable position for several days previously. The uterine wound bled freely. The abdominal wound was closed by ten sutures, aided by strips of adhesive plaster. Shortly after the operation the patient succumbed, owing to loss of blood.

The *post mortem* examination showed the bones highly hyperæmic, the form of the pelvis indicative of osteomalacia, and the last lumbar vertebra strongly pressed downwards, as after spondylitis. The various bones of the pelvis were movable at their junctures. Four months previously to delivery, the patient ex-

perienced a sensation as if something in the pelvis had become sprung, or as if the pubic bones had become partly separated.

HUBER ON EXTRACTION BY CEPHALOTRIPSY. Dr. Huber states that, on account of the frequent occurrence of the flattened and rickety pelvis in his neighbourhood, he has performed cephalotripsy on eleven occasions, and trusts his experiences may be of service to others. He employs Scanzoni's instrument. There are three errors which beginners are likely to make.

1. The blades are not passed up high enough, and this is more particularly the case when the head, from compression, has become much elongated.

2. The handles are not sufficiently depressed. Hecker maintains that the instrument should be so depressed as to be almost in a vertical position.

3. Traction is begun before the brain has all come away.

Should a removal of the bones be necessary, he considers that Simpson's cranioclast is superfluous, as also Mesnard's forceps, and Boer's pincette; and that after the bones have been once or twice well squeezed they can be more readily removed by the fingers, and with less damage to the maternal parts than by any other method.

Still there are cases with the most skilled operator, in which the cephalotribe is not available as an extractor. In one case, the author failed to extract after a twelve hours' attempt. A putrid child was afterwards spontaneously expelled.

Kilian's proposal to leave the fœtus to decompose and to spontaneous expulsion, is, on account of extreme danger, not feasible. The much recommended use of the sharp hook in text-books is a most questionable proceeding, not only on account of the great difficulty experienced in its application, but also the extreme danger of its injuring the maternal parts. Huber agrees with Cazeaux in proscribing it, and replacing it by a curved blunt hook. This instrument is best applied by putting the finger into the mouth of the child and passing the hook with the other hand, and fixing its point into the most accessible posterior nares; even if the parts be torn, no great injury will accrue, and the other nares will still be available. The writer believes he is the first to suggest the passing of a curved blunt hook into the posterior nares as a method of extraction. He tried it in one case with complete success, where he had failed after using every other method.

VON HASELBERG ON OVARIAN PREGNANCY.—

At the meeting of the Berlin Obstetrical Society on January 27 (*Berliner Klinische Wochenschrift* June 15), Herr von Haselberg demonstrated a preparation of ovarian pregnancy. The woman was twenty-six years old, and had given birth to two children previously. She thought herself pregnant about three months. She was suddenly seized with great pain in the abdomen, accompanied by a bloody discharge *per vaginam*, and the passage of a clot. The pain increased; and when first seen the patient was pale and pulse frequent, the abdomen very sensitive. *Per vaginam* a tender, uneven, movable tumour was discovered. She died four days afterwards. The *post mortem* examination discovered a considerable amount of recent and old clots in the pelvic cavity. Behind the uterus there was a tumour about the size of a fist, with two small rents on its upper surface; within was an ovum containing a fœtus about 1·2

inches long. No tube could be found. That an ovum had developed in the ovary, was proved by discovering a corpus luteum alongside of the cavity.

W. C. GRIGG, M.D.

LINN ON THE NORMAL PULSE, RESPIRATION, AND TEMPERATURE OF PUERPERAL WOMEN.—Dr. G. Wilds Linn, late resident physician to the Philadelphia Hospital, reports (*Philadelphia Medical Times*, May 9) his observations on temperature in a series of twenty-four normal puerperal cases occurring in the Philadelphia Hospital. The observations were begun immediately after delivery and continued for nine days, during which time the patients were kept in bed. The temperature was observed in the axilla at 9 A.M. and 8 P.M. While the cases were under observation, no alcoholic stimulants were allowed. The diet consisted of milk, eggs, beef-tea, and mutton, with coffee or tea, and bread, toasted or plain, with butter.

The conclusions deduced from these observations are the following.

1. The normal temperature of the puerperal woman is only about 6° Fahr. higher than that of the healthy human being, if we accept the statement of Wunderlich, that the mean normal temperature is 98·6° Fahr.

2. The normal pulse of the puerperal woman is not more frequent than that found under ordinary conditions in a state of perfect health.

3. The number of respirations is increased, if the statement of physiologists be received, that the number of respirations of the healthy woman ranges from eighteen to twenty per minute.

4. The generally received opinion that the secretion of milk is attended by an increase in temperature of one or more degrees, and an increase in the frequency of the pulse of 10 or 12 beats per minute, is erroneous.

5. A temperature of 100° Fahr., or a pulse of 100 a minute, in the lying-in woman, is indicative of some pathological process, which it behoves the accoucheur to discover at once, in order that proper measures may be taken to arrest its development and remove the evil.

These observations are in accord with those previously published by Barker, Winkel, Wolff, and Baumfelden.

MARTIN ON A CASE OF ADHERENT OVARIAN CYST, CURED BY INJECTION OF A SOLUTION OF CARBOLIC ACID.—Dr. Edward Martin reports (*Berliner Klinische Wochenschrift*, June 15, 1874), the case of a young woman aged twenty-five, of delicate constitution. The ovarian tumour was ascertained to spring from the left side, and to be attached to the uterus. The uterine sound passed nearly three inches forwards, and to the right. Any movement of the tumour affected the uterus. At the urgent request of the patient, she was operated upon. An incision about four inches long was made in the linea alba. The tumour was then found to be so firmly adherent to the abdominal walls, that any attempt at its removal would have been fraught with great danger. An opening a little more than an inch long was made into the cyst, and about a quart of a brownish glairy fluid, mixed with small blood-clots, was let out. An examination of the cyst showed it to be fixed to the abdominal walls, and to the uterus to a large extent. Two strong elastic catheters were fixed in the cyst, and the wound closed by metallic sutures. The next day, a solution of carbolic acid

in water (0.25 per cent.) was injected into the cyst, and continued until what ran out of the other catheter was quite clear and free from any odour. That which first came away was turbid. This was repeated three times a day. The solution on the next day contained $2\frac{1}{2}$ per cent. of carbolic acid, which was afterwards increased to 10 per cent. The temperature never exceeded 101.5 Fahr., and the pulse 120. The tumour gradually became less and less, and on the thirteenth day it was about the size of an apple, and the discharge was free from any odour. The injections were then reduced to twice a day. On the twenty-fourth day the catheters were removed. The small fistulous opening soon closed; and when last seen, five months afterwards, she was completely restored to health and strength.

The only point of interest was the uninterrupted convalescence, which was attributed to the frequent washing out of the cyst with the carbolic acid lotion. At no time did the urine show any trace of carbolic acid, although a strength of 10 per cent. was for some days injected. The remains of the former tumour were still evident behind the cicatrix when last examined, but nothing was discoverable *per vaginam*.

STÜMKE ON A RARE FORM OF MALFORMATION OF THE FEMALE GENITALS.—This case was reported by M. Stümke at the meeting of the Obstetrical Society in Berlin, on January 18, 1874 (*Berliner Klinische Wochenschrift*, June 15). It was not discovered until the forceps were being applied. It consisted of an hypertrophy of the preputium clitoridis, which was as large as the forefinger, and attached to the posterior fourchette. It was torn through by the passage of the child's head; and both ends were afterwards cut off by the scissors.

HARTWIG ON A NEW INTRAUTERINE PESSARY. Dr. Hartwig, of Berlin (*Berliner Klinische Wochenschrift*, July 20, 1874), describes a new form of intrauterine pessary. To the button of an ordinary intrauterine stem there is screwed a corresponding excavated plate; between these the ends of a gum tube are firmly squeezed, in which a piece of whalebone or a watch-spring has been introduced. By means of this screw there is an elastic half hoop on one side of the double button, which, according to the way it is introduced, will look either upwards or downwards. The advantages to be gained by this instrument are the following.

1. The uterus is not immovably fixed, but capable of equal movement with its natural supports.

2. The vaginal walls are not put on the stretch, as the stem comes to its aid.

3. It does not prevent coitus in many cases. If desirable, another loop can be added to it, making it a double-looped one.

MAYER ON DOUBLE POLYPUS.—At the meeting of the Berlin Obstetrical Society on January 27 (*Berliner Klinische Wochenschrift*, June 15), Herr Mayer exhibited a double polypus springing from one root, about four-fifths of an inch in length. This he considered a very rare accident. In the same person, two years previously, he had removed a polypus with a broad base about the size of a child's head. He then noticed two hard masses in the cut surface, which probably was the origin of this double polypus.

W. C. GRIGG, M.D.

DERMATOLOGY.

ESPINET ON LEPROSY IN THE WEST INDIES.—The following is an abstract of a Report of the Leper Asylum at the Port of Spain, presented to the Legislative Council of Trinidad, by the Medical Superintendent, Dr. Espinet, dated April 30, 1874.

Of 116 cases, 89 men and 29 women, 27 had been admitted last year. Of these, 16 presented the tuberculated form of the disease, 10 the anæsthetic; and in the remaining case the two conditions were combined. Six patients were discharged, relieved by treatment.

1. Male, aged twenty-one, coolie; immigrant from India. He had been ill two or three years before admission in 1872. He had brown, scaly anæsthetic patches on the trunk, scrotum, and upper and lower extremities. Cashew-nut oil was applied locally, and twenty drops of Donovan's solution given twice a day for three weeks. When he left, by his own desire, all the patches had recovered some sensibility.

2. Male, aged twenty-eight, also Indian; had an ulcer on one foot, and two large scars, only slight anæsthesia. The diagnosis was doubtful; perhaps there was syphilis. He was treated locally with black wash, and internally with five grains of iodide of potassium twice a day. He was attacked by pleuro-pneumonia, and cured with blistering and tartar-emetic. He left with the ulcer healed.

3. Male, aged thirty-eight, a third coolie; had tuberculated leprosy with dysentery. He was much improved by ten months' stay in the Infirmary, with good food and without any drugs.

4. Male, aged thirty-six, coolie; had leprosy nodules, ulcers, and anæsthetic patches. He improved under quinine and meat diet.

5. Male, aged twenty-nine, coolie; had lepra anæsthetica, with a small ulcer on one foot. Cashew-nut oil was applied, and Donovan's solution, iodide of potassium, quinine, arsenic, and iron, were given internally. He left improved in health, but with the cutaneous disease unchanged.

6. Male, aged twenty-six, creole; had lepra anæsthetica, maculosa, et squamosa, and an ulcer on the heel. He was relieved without specific treatment, and on leaving the asylum married a leprosy woman, the subject of the disease in its anæsthetic and ulcerative form. They have had two children, neither of whom have shown signs of inherited disease: the elder one is four years old.

Of the 116 patients, 18 died in the asylum; 3 from exhaustion; 5 from diarrhoea and dysentery; 5 from disease of the lungs; 3 from gangrene; 2 from ascites.

Of the 86 inmates at the date of report, 24 were natives of India, 56 of Trinidad, 3 of China, 2 of Barbadoes, and 1 of Africa.

Dr. Espinet believes that leprosy is on the increase among the coolies. It appears almost, if not quite, invariably to show itself some time after their arrival in the island from India. As leprosy is common in some parts of Hindoostan, it is possible that some of them bring a hereditary taint with them; but Dr. Espinet thinks more influence is due to their insufficient and unvaried diet (chiefly or entirely rice), their foul habits, and especially their custom of eating dirt. No instance of the disease has yet occurred in a coolie child; the children are better fed and cared for than their parents.

In one case, a leprosy boy, ten years old, con-

tracted 'yaws' from an ulcer on the face of a child whose mother was subject to the same disease, and the boy transmitted yaws to two other lepers.

In conclusion, Dr. Espinet points out that the two measures called for to combat leprosy in Trinidad as elsewhere, are (1) improvement of the abundance and variety of food of the poorer population, and (2) sequestration of those already attacked, so as to prevent its propagation by hereditary transmission.

VIDAL AND HILLAIRET ON THE TRANSMISSION OF RINGWORM.—MM. Vidal and Hillairet have added (*L'Union Médicale*, June 30) to the cases reported in a former number of the MEDICAL RECORD (July 1, p. 407), one in which tinea tonsurans was transmitted from horses, and one from a calf to human beings; and the latter observer added the following. Six railway workmen came to him with 'pelade' (*Porrigoides* of Willan, *area* Celsi), and he found that a cat which was sick and losing her hair was constantly lying on their caps. [The cat, however, was not examined.]

HIRSCHBERG ON XANTHELASMA PLANUM ET TUBEROSUM.—Dr. Hirschberg publishes (*Berliner Klinische Wochenschrift*, July 20, 1874) the case of a man, aged thirty years, who from the age of eight has been the subject of a remarkable affection of the arms and legs, which has gradually increased to its present dimensions. The skin is in many places deeply pigmented, and is also covered with flat yellow patches or with raised nodules, which are most prominent about the ham and the elbow. Some of them are separate, others are clustered into great masses. From microscopical examination of a piece of the affected skin seven years ago, Virchow and Leber described it as *Xanthelasma multiplex* [*Vitiligoidea plana et tuberosa* of Addison and Gull.—*Rep.*] or *Fibroma lipomatodes*. The fibrous structure with oil-drops which they found, was again seen in a nodule excised in the present year by Dr. Hirschberg. An apparently similar growth had formed on the cornea, of the right eye as early as 1864. This was removed by the late Professor von Gräfe in the following year, and again on its return in 1867. At that time there were yellowish flat spots on the left cornea, which Von Gräfe regarded as early stages of the same disease; but at the present time they are still in the same condition, though the tumour of the right eye returned and became so large, that the entire globe was lately removed by Dr. Hirschberg. The growth had invaded the whole of the cornea and filled the anterior chamber. On section it showed a tissue rich in cells of varied size and form, many of which were in a state of fatty degeneration; it was said, however, to agree with the structure of the cutaneous nodules. [This case is evidently the same as that described and figured by Virchow in 1871 (vol. lii. of his *Archiv*, p. 504.) There is no account of any jaundice or other accompanying symptoms. The result of the microscopical examination of the nodules in this case, and the fact of the yellow patches being found on the cornea (even if the identity of the tumour which destroyed the right eye be doubted) add fresh proof that this remarkable disease is not an affection of the sebaceous glands, as asserted by Hebra, Neumann, and Dr. Tilbury Fox. The microscopical characters agree with those first described and figured by Dr. Moxon (Pavy on *Vitiligoidea plana et tuberosa*, *Guy's Hospital Reports*, 1866), and since by Professor Waldeyer (Virchow's

Archiv, vol. 51, p. 318), confirmed by the observations of Dr. Frank Smith (*Journal of Cutaneous Medicine*, Oct., 1869), Kaposi (Hebra's *Hautkrankheiten*, II. Theil, p. 257), Mr. Howse (Fagge on *Xanthelasma*, *Path. Trans.*, 1873, p. 244), and several other observers. It has been well described as atheroma of the skin. While small patches of xanthelasma on the eyelids are very common, multiple nodules as in this case, and in three of those first recorded (by Addison and Gull in the *Guy's Hospital Reports* for 1851), are much more rarely met with. *Rep.*]

LANCEREAUX ON PARALYSIS AND CUTANEOUS DISEASE.—*L'Union Médicale* for June 30, 1874, contains the following case by M. Lancereaux. A woman, aged thirty-seven, keeper of a wineshop, had her cellars emptied during the insurrection of the Commune. After a month of great mental depression from this cause, she was suddenly attacked by left hemiplegia, without loss of consciousness, followed by aphasia. In six months she had recovered her speech, and in two or three more the paralysis had almost disappeared. From this time, however, her sight became weak, she felt severe pains in the loins, and afterwards in both legs, and a cutaneous eruption appeared on the feet. Nearly two years after the apoplectic attack she came under M. Lancereaux's care. There were then alopecia, left ptosis, with dilated pupil, and external strabismus. There was no palsy of the portio dura, and little or no remains of hemiplegia, but weakness of all the limbs. Sensation was perfect everywhere. She had severe stabbing pains in both legs. There was a scaly eruption with yellow crusts over the soles and backs of both feet, with slight redness and desquamation up the legs. While she was under observation large bullæ formed on one foot, and there was so much inflammation around it that it resembled erysipelas; but the inguinal glands became also enlarged and painful. Two months later a chronic slightly scaly eruption appeared first on one and then on the other hand, occupying the palms and wrists, and looking like syphilitic psoriasis. Meanwhile the patient kept her appetite, and the urine, pulse, etc., continued normal. The toe-nails became longer, thicker, and more distorted, the feet became completely covered with small white scales, with occasional bullæ, and on removing these the skin was found red, smooth, and tense, as if it had been burnt. The toes gradually atrophied, and the lymphatics could be felt as hard cords up to the inguinal glands. The affection of the hands also spread up to the elbows. About eighteen months after her first attack, the patient was seized with spasms of the neck and limbs, became unconscious, and died in twelve hours. The organs of the thorax and abdomen were found to be healthy; but for some unexplained reason the brain and cord were not examined. M. Lancereaux inferred that all the phenomena were due to some chronic disease of the nervous centres, affecting the nutrition of the skin by trophic nerves. [The unfortunate omission makes this remarkable case of less value than it should have been. The reporter has seen at least three cases which he believes to correspond to that of M. Lancereaux. They were all in women, and began with coldness and numbness of the fingers, followed by redness and desquamation with anæsthesia and atrophy. In the earlier stage the appearance was like that of a chilblain, afterwards more like chronic eczema squamosum, and finally, in one of the cases, a patient of Mr. Cooper Forster's, at Guy's Hospital,

more than one of the phalanges shrivelled and fell off. In this case there was a similar slow atrophy and dry gangrene of the toes. In none of these patients were there any symptoms of disease of the nervous centres, and it may well be that the cutaneous affection described by M. Lancereaux, as well as the hemiplegia, may have been both due to disease of the arterial system rather than to any primary lesion of the brain.—*Rep.* P. H. PYE-SMITH, M.D.

REVIEWS.

De l'Homme : Principes de Climatologie Médicale et leur Application aux Climats Sud-est et du Sud-ouest de la France. Par Sir ALEXANDER TAYLOR. Pp. 19. Pau. 1874.

In this little *brochure* we have the matured views of Sir Alexander Taylor on the climate of Pau. Sir Alexander has done very much for Pau what Dr. Henry Bennet has done for Mentone, and has made it a popular residence for the English.

The views which he lays down in this paper are mainly those which he expressed in his well-known work on the climate of Pau, and which continue to guide him in his practice in that city. But his opinions are here made to rest on a more general and philosophical foundation, and he discusses at length the four temperaments—the sanguine, the phlegmatic, the choleric, and the melancholic, and the principles on which climates should be selected, in order to suit each temperament. The following short extract gives the gist of the pamphlet.

‘The climates of the south-east and of the south-west of France may be divided into two classes: those which are exciting, and those which are sedative. In exciting climates are to be found invariably the following atmospheric conditions. Great dryness, air highly charged with electricity, the presence of ozone, and during the spring sharp and irritating winds in the south-east of France, as Nice, Mentone, Cannes, Hyères, Montpellier. In sedative climates we find a sort of neutral state of the atmosphere, a very moderate amount of dryness, great absence of free moisture, rareness of free electricity, or of ozone, and a great calmness of the air, as at Pau.

‘If we wish to stimulate languishing functions, to quicken the too slow circulation of the blood, to awaken the dormant energy of the nervous system in melancholic and phlegmatic temperaments, we must not send such cases to the sedative climate of Pau.

‘If, on the other hand, we wish to moderate nervous or muscular excitement, to quiet inflammatory tendencies, and give some repose to the constitutions of the choleric and the sanguine, the physician consulted, if he understands the case fully, will not send them to exciting climates like those of Nice, Mentone, Cannes, Hyères, and Montpellier.’

Such are the commonly received views on the subject. Whether too strong a line is not usually drawn between exciting and sedative climates, is another question. J. MACPHERSON, M.D.

Mélanges de Pathologie Comparée et de Tératologie. Par le Dr. O. LARCHER. Paris, 1874.

The second fasciculus, recently published, of Dr. Larcher's *Mélanges de Pathologie Comparée et de Tératologie*, is entirely devoted to the pathology of birds.

The first memoir treats of foreign bodies in the digestive tract, comprising distension of the crop with substances of food; fatal inflammation set up in the crops of young birds by the voracious swallowing of insect larvæ; the various parasites which infest the crop; lodgment of foreign bodies in the ventriculus succenturiatus [or proventriculus], and in the true gizzard, and entozoa in the intestinal tract beyond the pylorus.

The second memoir is devoted to the affections of the female generative organs, and includes abnormal conditions of the ovary, of the oviduct, and of the cloaca. A lithographic plate is given of prolapse and hernia of the oviduct [bird not named], with retention of the egg; also of a duplicature of the external orifice of the cloaca in a hen turkey.

The commencement, also, of a memoir is given on the affections of the circulatory system in birds.

The principal value of this little *brochure* lies in the copious references in foot-notes to the literature and collections of all countries which bear on the subject. J. C. GALTON.

MISCELLANY.

In the week from July 19 to 25, there were thirty-two new cases of small-pox in Stockholm.

THE School of Pharmacy of Paris has at the present time 500 students attending it. In addition to these must be reckoned the students attending the Provincial Superior Schools of Pharmacy.

JABORANDI.—M. Coutinho has placed a certain quantity of this much talked of drug on sale at Mariani's, the chemist on the Boulevard Haussmann, in Paris. Our French *confères* will therefore now have a better opportunity of arriving at a just conclusion as to its alleged sudorific and sialogogue qualities.

A MEDICAL CONGRESS will be held in Forlì in the week from September 16 to 22. This will be immediately followed by the Meeting of the Italian Medical Association, which will commence in Bologna on September 22. During the later meeting, the statue of Morgagni, in Bologna, will be unveiled.

PROFESSOR MOMMSEN has been elected Rector Magnificus of the University of Berlin, by a majority of twenty-three votes against nineteen. His principal opponents were Professors Bardeleben and Helmholtz. Professor Hirsch has been elected Dean of the Faculty of Medicine in the same University.

OPIUM SMOKING IN THE UNITED STATES.—Official reports state that 250,000 pounds of opium are annually imported into the United States, being ten times as large a quantity as the imports of ten years ago. Barely a third of the amount is used for medicinal purposes; the rest is consumed by the opium-smokers.

L'HOMME À LA FOURCHETTE.—At a recent meeting of the Paris Société de Chirurgie, M. Labbé gave the latest intelligence concerning this man. A considerable swelling had appeared in his right hypochondrium; and, the formation of an abscess appearing to be likely, M. Labbé thought it advisable to expedite the process by the application of blisters and iodine. These methods, however, had the precisely contrary effect of producing the resolution of the swelling. The patient scarcely suffers anything except after a full meal, when he always bends himself to the left side, a position from which he derives relief. M. Labbé intends to content himself by merely observing the condition of his patient, without undertaking any operation.

ON August 2, the Frederick-William Medico-Chirurgical Military Institute, in Berlin, celebrated its seventy-ninth, and the Medico-Chirurgical Academy its sixty-third anniversary. The festival was attended by a large number of military medical officers, and by general officers, and by professors of the University. In welcoming the guests, General-Surgeon Dr. Boeger regretted the loss which the profession had sustained by the death of Dr. Loeffler. In the last year the Academy has been attended by 203 students. Professor Virchow delivered an address on the essential nature of infectious diseases, according to the most recent researches.

HIPPOPHAGY.—The consumption of the flesh of horses and their congeners, mules and asses, is decidedly on the increase in Paris, a result doubtless assisted by the proverbial excellence of the French sauces. Returns show that the flesh of 2,111 horses, asses, and mules was sold to the Parisian public during the first quarter of the current year, against 1,275 in 1872, and 980 in 1870. A similar increase of consumption is also reported from the provinces. 'Honour be to him to whom honour is due' has been carried out by the Society for the Propagation of the Practice of Eating Horse-flesh, who, at their last meeting, conferred medals on M. Decrose, a military veterinary surgeon, its founder; and on M. Condere, who was the first to preserve horse-flesh, or at least the first to do so avowedly. It was stated at the meeting that horse-flesh preserved in February, 1871, by M. Condere's process, and opened in April, 1874, could not be distinguished from beef preserved according to the best methods now in use.

THE MEDICAL ARMY OF PARIS.—M. Maxime du Camp, the painstaking historian of modern Paris, gives us some information in an article lately published in the *Revue de Paris*, of the amount of the army employed in combating disease and death in that city. From its pages we learn that the gay city contains 1,726 doctors and 179 officers de santé, or medical men not possessing doctor's degrees. The medical necessities of the Parisian population likewise find work for 561 midwives, 353 dentists, 528 herbalists, and 734 apothecaries. With regard to the drugs vended by the last-mentioned class, M. Maxime du Camp gives a curious experience of the variation of prices sometimes asked for the same article. He wanted 100 grains of dioscorides, and was asked for them 20 francs by one chemist, and 10 francs by another, and finally found a druggist who manufactured them and sold them to him for the modest sum of 19 sous, or ninepence-halfpenny English money.

SPIRIT PHOTOGRAPHS.—Dr. J. H. Gladstone, F.R.S., has called attention to some photographs of fluorescent substances, which the editor of the *Philadelphia Medical and Surgical Reporter* thinks may help to explain the mystery of the so-called spirit photographs of which we have lately heard so much. It appears that the fluorescent substances, such as bisulphate of quinine, or uranium glass, have the power of altering the refrangibility of the violet or chemical rays of light; hence, although paper painted over with bisulphate of quinine will look nearly white, it will appear in photographs as if it were nearly black. Dr. Gladstone has exhibited some photographs of ornamental design traced on white paper with bisulphate of quinine; although the designs were nearly invisible to the eye, in the photographs they were boldly visible. A colourless solution of bisulphate of quinine was placed in one glass, and some ink in another glass; when both glasses were photographed they came out equally black. Dr. Gladstone said that once at the seaside he painted a pattern with bisulphate of quinine upon paper, and took the paper to a photographer to be photographed; he objected, because there was nothing on the paper, but on trying the experiment he found out his error. It was stated that some kinds of varnish possess a similar power of affecting the refrangibility of light.

THE RECENT EPIDEMIC AMONGST HORSES IN NEW YORK.—An investigation into the recent wide-spread disease among horses has lately been made in New York by order of the Board of Health of that city. The writer of the report on the subject regards the disease as the exact counterpart to epidemic influenza; and, while admitting that the simultaneous seizure of horses all over the city did not arise from contagion, he maintains that it spreads from city to city and state to state, solely and uniformly through the transportation of the poison by a diseased subject. Thus it would seem that he believes some occult atmospheric condition to be necessary to the prevalence of the disease, yet not of itself able to originate it, for he says that strict quarantine invariably protects. In other words, contagion is necessary, while yet in a given city or stable the spread of the disease confessedly outruns the possibility of contagion.

A NIGHT medical service has just been organised at St. Petersburg by the medical men of that city; an arrangement which meets a real want of the public of the Russian capital, who, however, had hitherto not taken the necessary steps to provide it. Russian medical legislation does not allow liberty of work to medical men, who when required, either by a sick person or any one believing himself to be ill, are not permitted to refuse help. The physician, surgeon, accoucheur, midwife, or assistant who should either refuse to act when called on, or neglect to do so, is punished by a fine, on the first occasion of from 5 to 10 roubles (17s. 6d. to 35s.), on the second occasion of from 10 to 15, and the third time from 50 to 100 roubles; whilst the physicians and surgeons who are in government employ may be deprived of their office. These laws are sanctioned by usage, and no later than this year two Russian physicians were tried for an infraction of this law, and one of them condemned for having refused to afford assistance to an invalid during the night. The *Courrier Médical Russe*, whence we obtain our information, insists on the necessity of abolishing these coercive measures directed against medical men; the more so that at the present time everything relating to the public health in Russia is regulated by municipalities in the cities, and by the territorial, cantonal, and departmental councils in the provinces. The same journal also urges that in England custom no longer sanctions coercive laws directed against medical men, whilst in Prussia they were erased from the statute-book in 1869.

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The London Medical Record.

WEDNESDAY, AUGUST 26, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON THE PHYSIOLOGY OF THE CORTEX CEREBRI.* By JAMES J. PUTNAM, M.D.†

ALL those of the profession who interest themselves in physiological matters are already familiar with the experiments, made first, some years ago, by Fritsch and Hitzig of Berlin, and latterly repeated with greater elaboration by them, and by Ferrier of London, which seem to prove that the cortex cerebri is not, as had been long believed, or at least not over its whole extent, incapable of responding to other stimuli besides those to whose influence it is regularly subjected.

On the contrary, it appears that, when a weak current of electricity is applied to certain pretty sharply defined points which lie mainly in the convolutions bordering on and anterior to the fissures of Sylvius and Rolando, certain groups of muscles on the opposite side, and sometimes on both sides of the body, may be thrown into contraction. The important bearing of these observations upon cerebral physiology and pathology has not failed to gain for them the close attention of neuro-pathologists everywhere, and especially of Dr. Hughlings Jackson, of London, who sees in them the verification of some clinical theories of his own. The observations themselves have received corroboration from all sides, but recently an important criticism has been made on them by Dr. Eugene Dupuy,‡ and by MM. Carville and Duret,§ and, indeed, by Hitzig himself in speaking of the experiments of Ferrier,|| viz., that it is impossible in using induction currents (Hitzig employs galvanic currents), to confine the irritation to limited districts of the cortex cerebri, and that the muscular contractions which attend, at least Ferrier's method of irritation, are due partly (Hitzig) or entirely (Dupuy) to the irritation of nervous masses which lie buried deeper.

The experiments here recorded were undertaken for the purpose of testing that point; but it may be well, before describing them, to examine a little the adverse testimony just referred to. The criticism of Hitzig was called out by the fact that Ferrier's centres, though in the main corresponding with his, occupied a larger area, and that their position, as observed in cats, differed from that in dogs more than the other differences between these animals would have led him to believe. Into the examination of these points we do not undertake to enter.

* *Boston Medical and Surgical Journal*, July 16, 1874.

† Lecturer on Diseases of the Nervous System in the Harvard University, Boston.

‡ *Examen de quelques points de la Physiologie du Cerveau*. Paris. 1873.

§ *Gazette Médicale de Paris*, January 10, 1874. Vide also review of both in the *Archives of Neurology and Electrology*, vol. i. no. 1, May, 1874.

|| *Berliner Klinische Wochenschrift*, February 9, 1874.

On the part of Carville and Duret, the criticism was founded mainly upon the results of some experiments in which platinum needles, connected with a sensitive galvanometer, were introduced to different depths into the brains of animals, while the cortex was faradised in the usual manner; and they assert that the galvanometer needle was deviated, even when the distance between the platinum needles and the electrodes which furnished the current amounted to several inches. From these and other facts, to be referred to later, they drew, among others, these conclusions.

1. The cortical substance of the hemispheres is not excitable; it is insensible, and does not contain special motor centres.

2. The effects produced by faradic currents are due to direct excitation of the corpora striata and crura cerebri, as the currents penetrate to these organs.

They also conclude that faradic currents, however feeble, are diffused over the surface of the brain, from one point to another.

Although the distinction is not made in their report, it is most probable that Carville and Duret used the primary, and not the secondary induction currents, contrary to Ferrier's habit; otherwise they would not have been able to detect their presence by the galvanometer, for the needle of this instrument is not deflected by the currents of short duration, whose direction is constantly changing, such as are obtained from the secondary induction coil. This is in so far of importance that the secondary currents, owing to their greater tension (power of overcoming resistance), make their way less weakened by diffusion directly through the tissue separating the wire electrodes; for although, in traversing any conductor electricity diffuses itself to some extent over the whole mass, yet the degree to which it does so is inversely proportional to its power of forcing a direct passage between the points of entrance and exit, and this power, thanks to the greater number of turns of wire of which the secondary coil is made up, belongs to the secondary induction current in greater degree than to the primary (extra) current.

Dupuy* was led to much the same conclusions as those stated, finding, as did also Carville and Duret, that 'it is possible to excite, by the irritation of any point whatever of the cortex cerebri, contractions, affecting sometimes a whole limb, which is generally the fore leg and on the opposite side of the body;' also 'that (while the irritation was being made as usual) a galvanoscopic frog-preparation was thrown into contraction when its nerve touched the cortex cerebri at a point far removed from that irritated,' and, further,† that nerves at the base of the brain, which have been previously cut through to prevent the transmission from above of nervous excitation, can be excited electrically when applications are made to the surface of the brain in the usual manner, showing to how great an extent diffusion of electrical currents may take place.

That these results were obtained as stated we have no difficulty in believing, but we do not admit that they justify the conclusions drawn. The real question plainly at stake is, not, 'can we produce effects due to irritation of distant parts while irritating

* As well as for other reasons, not discussed here because not bearing on the point under consideration.

† So stated at a recent meeting of the New York Society of Neurology and Electrology. Vide *New York Medical Journal*, July, 1874.

definite points of the cortex cerebri,' which is unquestionably the case, but, rather, 'can we irritate the cortex cerebri to the extent necessary to produce the results claimed, without at the same time irritating deeper seated structures enough to call out their functional activity,' and this possibility is not refuted by the experiments of Dupuy, or Carville and Duret, but receives affirmative support from our experiments, although few in number. Our plan was, to find, which was always possible, centres for definite, and nearly or quite uncomplicated, movements, and the minimal current strength that was necessary to produce these movements, and then, with a sharp knife, to make a cut underneath them, leaving a good-sized but thin (by estimation 1 to 2 millimètres thick) flap, which contained, in each case, the supposititious centre. Having done this, we found that if we irritated as before, leaving the flap *in situ*, the movements before observed did not occur.

We then turned the flap up and irritated below it. The same strength of current generally failed here also to call out the movements, but they always appeared when the strength was slightly increased; not so, however, when the flap was turned back and adjusted, and the electrodes applied on its surface as at first, repeated trials being attended with the same results. The irritations were made with the current from the secondary coil of a Du Bois-Reymond's induction apparatus, run by a single Léclanché cell, and the minimal current, which was found efficient, was strong enough to be felt distinctly by the tongue, scarcely, if at all, by the finger,* *i.e.* of about the strength that Ferrier also found usually sufficient.

The animals experimented upon, three in number, were dogs. The method was that usually followed, and no accidents occurred which materially interfered with the investigations. The movements obtained were, in the first experiment, extension of the opposite fore-leg; in the second, extension of opposite fore-paw, flexion of fore-leg at elbow, extension of leg at shoulder, partial extension of paw, these different phases following each other slowly, and the full result only occurring when the irritation had lasted a certain time; in the third, extension of the fore-paw of the opposite, sometimes also of the same, side, and occasional slight movements of hind legs; in the fourth, well-marked closure of the opposite eye, without any other movements with the exception of occasional struggling.

Subsequent examination showed that the centres which we found agreed quite well with the corresponding ones found by Ferrier, in one instance, more closely, apparently with that given by Hitzig.

One experiment, given somewhat in detail, will serve as a type of all.

June 6.—A middle-sized, healthy dog was etherised, a large portion of the skull laid bare from the median line down to the zygomatic arch on the right side, and a small piece of bone trephined out from the middle of this surface. The opening so made was enlarged with bone-forceps to the diameter of about 1.5 centimètres, the dura mater removed, and the exposed portion of brain sketched. Muscular bleeding was checked by perchloride of iron; that from the membranes, which was considerable, by light pressure with sponges.

Centres were sought for in vain over this surface,

with irritations varying in strength from $D = 15.3$ centimètres to $D = 12.9$ centimètres.* Once only all the muscles of the body were thrown into spasmodic contraction, which lasted after the cessation of the irritation, passing over into general struggling which made more ether necessary.

The hole was then enlarged to about 3 centimètres in diameter, and the search continued, but, at first, without success. This was probably because the unusually great tendency on the part of the animal to struggle violently, though probably not suffering much pain, obliged us to keep it thoroughly etherised, whereas it is only during incomplete etherisation that the centres, or most of them, are irritable. At the thirteenth point of application, with the weak irritation $D = 14.8$ centimètres, we obtained firm closure of left eye, the animal being pretty well under ether, and quiet.

| Centimètres. | Result. |
|---------------|---------------------------------------|
| With $D = 16$ | Same as before, but less well marked. |
| $D = 15.3$ | Ditto, better marked than last time. |

(From this point on the animal remained, at least at the moments of experimentation, pretty quiet. The ether was discontinued so far as to ensure that the eyes should be open, or partially so, at the proper moments.)

As superficial a section as possible was then made (at most 1 millimètre thick), but the flap left *in situ*.

| | Centimètres. | Result. |
|--|--------------|--|
| Application made on top of flap | $D = 14.8$ | o |
| Application made on exposed surface after reflection of flap | $D = 14.8$ | o |
| Application made on exposed surface after reflection of flap | $D = 12.8$ | Left eye firmly closed. |
| Application made on top of flap after replacement | $D = 12.9$ | o |
| Application made below flap again | $D = 12.9$ | Closure of eye as before. |
| Application made on top of flap | $D = 12.9$ | o |
| Application made below flap | $D = 12.9$ | Closure of eye as before. |
| Application made on top of flap | $D = 12.9$ | Possibly closure of eye to slight degree. |
| Application made below flap | $D = 12.9$ | Closure of eye as at first, though not so strongly marked. |

Application made on top of flap $D = 12.9$ o

No other movements occurred, at the moments of experimentation, that could be regarded as due to the irritation of the brain, or that materially complicated the results stated.

These experiments were made at the physiological laboratory of the Harvard Medical College, with the kind assistance of Professor H. P. Bowditch and Dr. Wm. James. Since their completion, the gratifying statement has come to our notice that essentially the same method has been employed by another observer, with the same results. (Braun, *Eckhard's Beiträge zur Anatomie und Physiologie*, vii. 2; also *Centralblatt*, Berlin, June 13, 1874.)

* In no case was it necessary to make the secondary coil overlap the primary, or even to come within an inch of doing so.

* D represents the distance between the similar ends of the two coils. $D = 0$ would indicate that the secondary coil was slipped entirely over the primary. When $D = 7.5$, the anterior end of the secondary coil was just level with the posterior end of the primary.

THE PLAGUE IN MESAPOTAMIA AND NORTHERN AFRICA.

[The following interesting article is taken from the *Times* of August 17.]

The re-appearance of plague in Mesopotamia and in Northern Africa is a fact of peculiar interest, even if regarded solely from the historical associations of the malady. The locality of re-appearance in Mesopotamia is contiguous to the scene of the outbreak of 1867; the locality of re-appearance in Northern Africa was the scene of the outbreak of 1858. Plague is believed to have disappeared from Egypt in 1844, and it is not known to have existed in Northern Africa from that date to 1858. In the last-named year the disease broke out in the Regency of Tripoli, at Bengazi, the ancient Berenice, and spread over that portion of the district of Barca which was known among the ancients as Cyrenaica. Mesopotamia had been free from plague upwards of thirty years (no certain case had been known since 1834) when, in 1867, the disease appeared, and spread to some extent among the Arab tribes inhabiting the marshy district which lies west of the Euphrates, between the ruins of Babylon and the great shrine of Shiite pilgrimage, Nedjef (Meshed Ali).

The present appearance of plague in Tripoli begun at Merjeh some time during the first quarter of the year. Merjeh is situated to the south-east of Bengazi, about twenty hours distant, on the plain of the same name. It is a new town, built on the site of the ancient Barca. When the place was visited by Hamilton in 1856, a fortress, begun a year before, and 'several small houses in progress, destined to form the nucleus of a town,' alone existed. Now the number of houses is said to be 64, including certain excavations in the rocks, beneath the fortress, used as dwellings, and the general state of squalor seems to rival that of Bengazi, known among the Turks, from its persistent plague of flies, as the 'fly kingdom.' Thirty cases of plague, twenty-seven of which were fatal, have been verified by a medical commissioner, Dr. Laval, as occurring between the 7th and 21st of June, among a population of about 300. On the last-named date, Dr. Laval, unhappily, was himself struck down with the disease, and he died on the 27th.

In 1858, the plague which then prevailed in the district extended to Merjeh. The plain, or as some term it, the valley, of Merjeh, is an extensive tract of 'mingled pasture and cultivation,' hemmed in by richly wooded hills. Although from its extent designated a plain, and from its being surmounted by hills, a valley, yet, say the Beecheys, in their narrative of exploration on the north coast of Africa in 1828, this plain and valley, from its being situated 'in the top of a chain of mountains of no inconsiderable elevation, must also be considered as a tract of table-land raised far above the level of the sea.' The plain is a favourite resort of the Bedouin tribes in the summer months, from the numerous pools and lakes formed there by the water coming from the neighbouring hills. The different travellers who have visited the plain describe it and the district which surrounds it as of great beauty; and those geographers who hold that the gardens of the Hesperides were in the Cyrenaica appear to have much to justify their belief in certain physical characters of the district.

The outbreak of 1858 occurred in the midst of famine, caused by a continuance of drought in several successive years, and the consequent diminution and

ultimate destruction of crops and exhaustion of supplies. Famine is not stated to have preceded or accompanied the existing outbreak of plague in Merjeh.

The scene of the present diffusion of plague in Mesopotamia is on the lower Euphrates, south of Musseyib. The disease first showed itself at the close of February or the beginning of March last among the Affij Arabs, who occupy the northern portion of the great marshes on the east bank of the river. The infection quickly spread to the neighbouring tribes, and, attacking both banks of the river, it extended along the stream from Devanieh upwards to Hillah. On the west bank of the stream the infection spread also to Nedjef (Meshed Ali) and Kerbella (Meshed Hussein)—to the edge of the desert, in fact, traversing the district which was the scene of the outbreak of 1867.

Since the commencement of June, plague does not appear to have extended beyond the area described, and there is reason to hope that it is now dying out within it. No clear knowledge exists of the loss of life occasioned by this diffusion, and it is hardly likely that such knowledge will be obtained. The Medical Commission appointed by the Ottoman Government to investigate the diffusion has been able to satisfy itself of the nature of the disease, but has been foiled in its attempts to ascertain the extent of prevalence among certain tribes and in certain localities.

The recurrence of plague among the tribes inhabiting the marshes of the Lower Euphrates, as the recurrence of the malady in the district of Barca, is highly suggestive of inquiry regarding the development of the disease, if it were possible to carry out such an inquiry among the isolated and savage tribes affected. The Affij Arabs, among whom plague first appeared this year on the east bank of the Euphrates, seems to have like habits and like surroundings as the Beni-Taraf Arabs, among whom the disease first appeared on the west bank of the river in the outbreak of 1867. Both tribes live in the marshes, and for a third of the year amid the annual inundation of the Euphrates; both occupy reed huts covered with matting, and both cultivate and live largely on rice. Mr. Kennett Loftus, who visited the Affij Arabs twice, once in 1849 and again in 1854, describes their 'fragile towns' as consisting entirely—

'Of reed huts, the reeds being tied in large bundles and nearly arched overhead. This primitive construction is covered externally with thick matting, impervious to rain. The riches of the Affij are indicated by rows of huge reed cylindrical baskets, containing the grain upon which they subsist. Rice is produced in great abundance along the edges of the marsh; but the whole of their fields were at the time of our visit and for a third of the year entirely under water. Communication is kept up, as on the marshes of Hindieh, by means of long, sharp, pointed terradas, constructed of teak, and measuring twelve or fourteen feet long, by a yard in width.' (*Chaldaea and Susiana*, p. 91.)

The same writer's description of the Hindieh marshes, on the west bank of the Euphrates (the scene of the outbreak of plague in 1867), as seen from Birs Nimrud, deserves quotation.

'The view from the summit of the Birs Nimrud is very extensive, and its utter desolation has been the theme of frequent observation. No one can stand there and survey the scene around without being

struck with the literal fulfilment of Isaiah's prophecy—"I will make it a possession for the bitter, and pools of water; I will sweep it with the besom of destruction, saith the Lord of Hosts." Spreading out like a vast sea upon the north and west is a marsh, which all the labours of the ancient and modern rulers of the country have never been able to subdue. In certain seasons the waters of the Euphrates rise above their ordinary level and flood the whole surface of the lowlands of Chaldaea, confirming every word of the prophet. Bordering upon this marsh, a few spots attract the eye and relieve the long level of the horizon. Due south stands the little tomb of the prophet Ezekiel, and at the distance of fifty miles, in the mirage of early morning, may be discerned the mosque of the sainted Ali, glistening like a speck of gold as the beams of the rising sun play upon its surface. Nearer at hand, on the north-west, are the twin domes of Kerbella, the burial-place of Ali's slaughtered sons. The edge and islands of the marsh are at times dotted with encampments of Khuzeyl Arabs, and with the telescope may be distinguished the numerous flocks of sheep and camels, while the hum of busy voices can be distinctly heard a distance of full six miles across the waters.' (P. 33.)

About the same time that the outbreak of plague occurred among the Affij Arabs, and the disease appeared in Northern Africa, it was also rumoured that plague had shown itself at Revanduz, in Turkish Kurdistan, and in the vicinity of Bana, in Persian Kurdistan. Both places are on the confines of the district which was the scene of the outbreak of 1870. At the close of that year, after an interval of forty years, plague broke out among the villages situated between the rivers Jagatu and Tatawa, south-east of Lake Urumiah. It appeared first in those situated in the swamps, and of which the inhabitants were employed in the cultivation of rice. During the winter the infected villages were cut off from the surrounding country by the snow, and when communication was reopened with them they were found to have been well-nigh depopulated by the disease. As the spring advanced and the roads become free, the inhabitants took to the hills and migrated into neighbouring districts, carrying with them the infection, which now quickly spread over a considerable extent of the mountainous region. The inhabitants of this part of Kurdistan escaped the horrors of the famine which prevailed in Persia in 1871, but it is not so certain, as some believe, that the communities first attacked by the plague did not suffer much privation. The outbreak had been preceded by murrain among the cattle and by defective and diseased crops; and it is probable that the populations of the infected villages suffered great straits during the winter of 1870-71.

Famine during the past winter (1873-74) was widely present in Asia Minor, but neither the district of Kurdistan from which the rumour of plague now comes, nor the district which is the scene of the present outbreak on the Lower Euphrates appears to have suffered, and no report of plague has come from the famine-stricken districts.

It might seem from the recent recurring outbreaks of plague as if the disease were about once more to become a prominent epidemic. The possibility of a reappearance of the disease in an epidemic form has not been overlooked by the different writers on the subject; the subsidence and even apparent extinction of the malady in countries where it was once endemic

not being regarded as affording any surety against its recurrence, so long as the sanitary condition of the inhabitants remains unchanged. The limitation of the recent outbreaks to communities removed from ordinary observation, and among whom the first beginnings of the disease could not be traced, suggests that plague, although now more rarely observed in a diffusive form, may not so entirely have disappeared from its former seats of prevalence in the Levant as is commonly believed, and that these recent outbreaks may possibly be recrudescences rather than re-appearances. Whichever be the truth, the practical lesson is the same; and Europe, while not regarding these outbreaks with indifference, ought to contemplate them without anxiety. In the present state of medical and sanitary knowledge and practice, plague among European nations should excite no greater emotion, as it does not call for other measures of precaution or treatment than typhus. In the Turkish dominions in Asia and Africa, the case is, however, different. There races and populations, as in the present infected districts, have to be dealt with, among whom the sanitary regulations of a civilised community are impossible. But the sanitary organisation of the Turkish Empire seeks to close the different routes by which the infection of plague may travel from an infected locality, and it is now attempting to bring the various centres of Mahomedan pilgrimage in its dominions under systematic medical and sanitary supervision, so as to prevent them becoming as heretofore great *foci* of epidemic diffusion.

As we write a report has reached this country of the appearance in Western Arabia of a disease resembling plague, and the Egyptian Government has put in operation the most stringent measures for isolating the affected districts, and for placing under supervision, and subjecting to quarantine, arrivals from the Hedjaz in Egyptian ports. It has also decided, according to official report, to cut off all communication with the Regency of Tripoli by land and by sea. The locality in which the disease suspected to be plague has shown itself in Western Arabia is Dogar (or Doga), a town built of brushwood and reeds, and lying at the foot of the hills, a day's journey north-east of the fort of Gofudah. Here the encampment of an Arab tribe has been attacked. If the suspicion that this disease be plague should be confirmed, it is to be feared that the disease will also be found to exist in other parts of Arabia, as a consequence of dissemination from the Lower Euphrates and from Meshed Ali and Kerbella.

IMPURE MILK A SOURCE OF DISEASE. By T. D. CROTHERS, M.D., OF ALBANY, NEW YORK.*

Milk, as an article of diet, is almost universally used. It is one of those nutrient substances which are subject to rapid changes of chemical and physiological principles, depending upon various causes, of which climate, water, food, and surroundings are most prominent. Recently it has been proved that milk may be the active agent or vehicle for the transmission of disease. The many cases reported during the last year give strong evidence that milk is an agent of far greater danger, and more widely diffused as a source of disease, than we are aware of.

* *Philadelphia Medical and Surgical Reporter.*

The following case called my attention to this subject, and is presented not as peculiar and anomalous in any way, but one that can be readily confirmed by the experience of others.

Through January and February of this year I was called to prescribe for severe attacks of diarrhoea, occurring in a healthy family, well nourished, and living in good hygienic surroundings. This family had never suffered from this disease before, and it seemed more violent among the younger members than in those grown up.

The disease yielded readily to the usual treatment with evacuants and astringents, but returned as soon as the medicines were discontinued. A careful inquiry into the habits of this family indicated nothing unusual, except the free use of milk as an article of food. On Sunday, milk was made a prominent dish at dinner. It was noticed that the days following would be marked by an increase of the disease, unless checked by medicines. The milk was said to be pure, because it came from one cow kept in the neighbourhood. With these hints, I made a visit to the stable, where I found a small, ill-conditioned animal, standing in a close, filthy stall, ill-ventilated, and containing hardly room enough to turn about. The food of this cow was garbage from the street, consisting of vegetables in all degrees of decomposition, cooked and raw, alternated with brewer's grains once per day. Water was given in the food, but occasionally a pail was brought in, depending on chance and circumstances. The stable was cleaned once or twice a week, and the doors were closed to keep in some hens. The walls of the building were brick, and the ventilation or renewal of the air, must come from the open seams in the door and window. In this place, for over three months, this cow had been confined; her body was filthy, and the hair stood up in all directions. The amount of milk given varied from ten to eighteen quarts per day, and looked blue, although it tasted sweet. Here, the condition of the cow and surroundings, with the kind of food eaten, fully warranted the belief that the milk was impure and the cause of the diarrhoea. This diagnosis was confirmed by the complete disappearance of the disease when the family stopped using the milk.

No analysis of this milk was made, nor microscopical examination. But, on general principles, its fatty matters were deficient, with poverty of its normal constituents; and the microscope might have revealed animalculæ; but with these facts the nature of the poison would still be uncertain. Dr. Chandler, of New York, failed to find any specific poison in milk known to be impure. Other chemists have failed in like manner, giving strong hints that the cause is more subtle, and beyond our present limited means of observation. In this case, the impure milk acted as an irritant, causing a low grade of inflammation, a certain forerunner to other lesions.

A significant case, conveying a similar hint of obscure cause traceable to bad milk, came under my observation. An old gentleman, previously well and strong, while convalescing from a severe attack of intermittent fever, was ordered to use milk freely, by his physician. Four days after he began to use milk as a medicine, he was attacked with exhaustive diarrhoea, resisting all medicines, and terminating fatally in six days. The diagnosis was obscure, but subsequently it was ascertained that the milk used came from a cow kept in a similar condition as the one we have described. The family of the owner of

the cow, who used this milk, likewise suffered from diarrhoea, a striking confirmation of the probability that the impure milk of this cow was the cause of death. The later history showed that the diarrhoea disappeared when this cow was turned out in the yard, and given better food, and more cleanly surroundings.

Another case in the practice of a friend in this city is further corroborative. A middle-aged man suffering from diabetes for three months, was placed on a milk treatment, consisting of large quantities of milk daily. Chronic diarrhoea came on the second week after the treatment began, and grew worse rapidly, terminating in enteritis, exhaustion and death, four weeks after. The milk came from swill-fed cows, in close, dirty stalls, ill-ventilated, unhealthy, and diseased, without question impure and poisonous; giving strong probability that the active cause of death in this case was the milk.

There are three ways in which impure milk may be a source of disease, namely, chemically, physiologically, and psychologically.

It is well known that the *chemical* elements of milk depend upon certain conditions and surroundings which are clearly traceable, and may be well understood. Of these, the age, vigour, and health of the cow, with the quality of food, water, exercise, and pure air, are prominent factors. A deficiency of any of these will be followed by change in the quality of the milk. This is illustrated in the care and attention of stock-raisers, who, when they wish to produce a fine, well-developed animal, give particular attention to the food and water of the cow, allowing the calf to nurse direct, rather than be weaned and raised on inferior milk deprived of its fatty matters. It is well understood that all cows raised by the latter methods (artificially) are wanting in vigour, and give milk likewise deteriorated. Also there are many reasons for believing that milk from such cows is more susceptible to chemical and physiological changes, and more dangerous as a vehicle or source of disease.

The vigour and health of nursing children is in direct ratio to the quality and quantity of milk. The experience of every day indicates the perils which children are exposed to from this source, seen in both mother and nurse. Also it suggests, with startling significance, the increased danger when milk is used from cows.

Some remarkable experiments on this subject were conducted by M. Decaisne, of Paris, during the siege of 1871, and detailed in a paper before the Academy, of which a good abstract may be found in the *Half-Yearly Compendium* for January, 1872. He sought to show the influence of insufficient food on women's milk. Prefacing his paper with observations of Dumas, Payen, and Boussingault, in which were shown the fact that a cow gave healthy milk in exact proportion to the surplus of food beyond what was necessary for its own maintenance. If the animal was kept upon food barely sufficient for proper nourishment, the milk produced must be at a loss of animal tissue, with general deterioration of the milk and also of the cow. Milk formed at an expense of the nutrients and tissues of the body, has less caseine, butter, sugar, and salts, while the albumen will be increased. It follows that the value of milk must depend upon the excess of food beyond what is required by nature to keep up the normal vigour of the body. The author proceeds to show that nearly an analogous condition

exists in women, which he demonstrated by experiment during the siege of 1871, in forty-three cases of nursing women.

These cases were in private families, and suffered from want and insufficient nourishment. Some of the results of his observations are stated thus.

1. Insufficient food always produces a diminution in the normal quality of the milk, also a variation of its chemical constituents; such as an increase of albumen and diminution of caseine, butter and sugar. The proportion of albumen, in such cases, is generally in inverse ratio to that of the caseine.

2. The health of the mother declined with this variation in the quality of milk, depending upon age, hygienic conditions, constitutional vigour, etc., until the milk became minimum in quality and quantity. Also that these effects are seen in four or five days from the time of using an insufficient diet.

These experiments indicate that a similar imperfect condition of health and surroundings, in both animals and human beings, destroys the normal quality of the milk, and also encourages and predisposes to organic lesions.

Physiologically, milk may be normal in quality, yet possess the poisonous matter. Several striking instances have been noticed in Ohio and Indiana, where epidemics called 'milk-sickness' prevailed. This disease was extremely fatal to men and animals. In animals it was characterised by tremblings and fever, followed by congestion and death. In man the premonitory symptoms were obscure for some time, then a violent and intense fever came on, particularly among those who had used freely the milk from these cows. Where the animals were not attacked no cases occurred in man. These epidemics appeared in malarious regions almost exclusively, and when it ceased to exist among animals, likewise died out among men. The source of the disease was from the milk of these cows, but the ultimate cause was never clearly made out.

The instances of typhoid fever-germs being communicated through milk have been so recently discussed in medical literature that they are familiar to the profession generally. A mention of two most prominent examples will aid in a better understanding of this subject. An epidemic of typhoid fever which occurred near Glasgow, Scotland, in 1872 and 1873, indicated the prevalence of this fever in thirty-two out of thirty-nine families which were supplied with milk from one dairyman. Families supplied by other milkmen were singularly exempt. A milk census revealed that a large per cent. of the families supplied by this man were attacked at different times of the year with this fever. The family of the dairyman were also attacked, particularly those who had used the largest amount of milk. How the milk became the agent for propagating fever-germs is not mentioned, but evidently through adulteration with water.

Another case in the healthiest suburban section of London, which occurred last year, places the whole subject beyond all question. Five hundred cases of typhoid fever were found distributed in one hundred and four families, ninety-six of which were supplied with milk from one dairy. The contagion was traced directly to the water used for washing the cans and retained in the milk, the water being previously polluted by sewer drainage. The details of these cases are before the profession, and have suggested the inquiry whether other diseases, as well as typhoid fever, may not be transmitted in this way.

It has been asserted that drinking water polluted with fever-germs taken up by the cow, will pass off in the milk, producing fever, etc. Also, that cheese and butter made from dangerous or impure milk will likewise transmit poison germs. Cases marked by violent cramping and purging have been traced to the milk used, which was found to contain animalculæ, supposed to be taken up in the drinking water and developed in the system. Dr. Brown, of Gault, Ontario, reports two very striking cases of this kind.* Vogel, years ago, showed that vibriones in human milk arose from a condition of malnutrition. Dr. Gibbs found two genera of animalculæ present in milk, where the health of the mother was disordered by prolonged lactation. Other authorities have shown that milk may contain animalculæ as well as poisonous germs equally dangerous.

In Herkimer county, in this State, a large dairyman, who kept his cows confined in a filthy stable during the spring, suffered annually (with other members of his family), from a low type of continued fever. The families of two workmen who used this milk also suffered. The milk from these cows was charged with a pungent faecal odour, which the workmen sought to destroy by chemical means. For several years this condition existed, and the cause was supposed to be malaria. Four persons out of three families died, and those who had used the milk freely suffered largest. The physician used milk as a nutrient and medicine in all these cases, but no relief followed until the cows were turned out to the fields. Last year a thorough cleaning and ventilation of the stables took place, and was continued daily, resulting in a disappearance of this fever, for the first time in five years. Here the faecal gases of the foul stables impregnated the milk and was the active cause of fever. Observation will show that these cases are common, and are seldom recognised. Every farming community where milk cows are kept in stables, will furnish examples of different and mixed forms of fevers, which take their origin in this way.

These cases might be multiplied almost indefinitely, in single instances, and in local epidemics, but for our present purpose may be all summed up in one head, namely:—That milk physiologically may hold in suspension and transmit typhoid fever and malarious germs, animalculæ and poisonous faecal gases, all of which can be determined beyond doubt.

There is another source of disease, less frequent and more obscure, which I shall term *psychological*, because it affects the nervous system and its functions.

The milk contains some element, produced by the violent emotions of the mind, and that is directly poisonous; a familiar illustration is that of milk, when the mother is violently agitated, causing convulsions and death in the child. The text-books give particular caution and stress on this point, yet an hour after, when the emotions have subsided, the peril seems to have passed away. We are yet ignorant of the nature of this poison, which seems to have such a peculiar action on the nervous function. At a late clinic at the Albany Hospital a case was presented of a child six years old, suffering from epilepsy. The history indicated that the child was in health up to a certain time, when the mother, labour-

* Canada *Lancet*, August, 1872. *Half-Yearly Compendium*, January, 1873.

ing under intense excitement, put the child to her breast; soon after the convulsions came on, which developed into a full case of epilepsy. A case of chorea, now under my care, can be traced back to nursing the child when the mother was violently excited. Other cases have been noted, of feeble and broken down nervous systems in children, which were referred back to this same cause, with great probability of correctness.

We are more or less familiar with the profound and often fatal disturbances produced on the system of nursing children by the pregnancy of the mother.

Cases have been reported where nursing children have been seized with convulsions and death, proceeding from the difficult and painful menstruation of the mother. The influence in both of these conditions is physiological as well as psychological.

The same disturbing influence or elements, although less marked, may be seen in cows, and the milk possesses the same abnormal conditions.

A gentleman of this city was advised to secure the milk of a young blooded cow for his infant child. A cow whose first calf was running by her side was purchased, and the calf taken away; and his servant was ordered to milk her, bringing the milk direct to his house. Two months later this child, who was previously healthy, was broken out over the body with a strange undefinable rash, which finally developed into pustules, called by the physician scrofula. Following this came a fever which seemed to affect the brain and nervous system. In the meantime the bowels suffered from intestinal irritation, alternately constipated and relaxed. Various consultations were held by the family physician, and extensive medication followed. The result was that this child, for the year or more while using this milk, was under the constant care of physicians. And, after the second year, had a weak, broken-down nervous system, with frequent pustular eruptions over the body. This was the more remarkable as no other children of this family of five were afflicted in this way, and both parents were healthy.

Subsequently it was ascertained that this cow was driven into a close stall, and whipped into subjection to allow the milking to go on; and for the entire season this process was one of force and more or less brutality. Under these circumstances the milk was made poisonous by the nervous condition of the cow. This inference seems to be borne out by the history of the case, and confirmed by the fact that other children of the same family, brought up on milk from one cow, furnished by a dairyman, were healthy and strong.

A similar instance came under my observation, of a farmer, who, by the advice of his physician, procured the milk of an intractable cow, who had, from vicious habits, been considered unfit for the dairy. This cow, being of the Alderney blood, was thought to give richer milk. The milking was attended with much excitement, and the child to whom the milk was given suffered from gastro-intestinal irritation, and what was called scrofulous ulcers, during all the time of using the milk. Two years later this child was presented at the Albany hospital clinic with symptoms of chorea, a weak, nervous system, and low tone of physical vigour—an exception to the other children of the same family.

An illustration, more obscure, but pointing to the same cause, was noticed in this city three years ago. A highly respected milkman, with a large class of

customers, sold out his business, with cows, to a brutal, intemperate man, who continued the business as before. From some chronic disease he was unable to leave the farm, hence he gave his time to the milking process. Being inhuman and intemperate, he beat the cows, often with cruelty. The customers diminished, and complained that the milk was adulterated with some substance which acted on the bowels. At one time a large number were attacked with diarrhoea and cramps; and many bitter complaints were made. Later the property changed hands, and these troubles disappeared. No complaints of the milk had been made before or after this man engaged in or gave up the business, and it was asserted by a workman who remained during this time that the milk was treated in the same way, and not adulterated, leaving a very plausible inference that the excitement among the cows at the time of milking was the cause of the bad condition of the milk.

These instances seem to indicate that the quality of milk may be chemically and physiologically normal, and yet be poisonous to a large degree, psychologically propagating functional and organic changes of the nervous system as dangerous and positive in their effects as the germs of typhoid-fever through the same source.

Practically, this subject resolves itself into the following conclusions, which should be prominent in the diagnosis of obscure diseases.

1. Milk coming from ill-nourished, half-fed cows, having no surplus of food beyond the minimum requirements of nature, is injurious, and may be the source of disease.
2. Cows deprived of abundance of good water, ventilation, and exercise, secrete impure and dangerous milk, which may be loaded with gases, animalculæ, and fever germs.
3. The milk from old, debilitated cows, fed on grains or overstimulating food, is also imperfect and unhealthy to a variable degree.
4. The nervous condition of the cow at the time of milking determines the purity of the milk. If this be neglected, the milk is an active source of disease, positively dangerous and fatal.
5. Milk adulterated with water is always liable to contain poisonous elements, particularly so in the spring of the year, when all spring and well water is more or less contaminated with surface-drainage. This is the most common adulteration, and probably the most dangerous.
6. Experience has shown that the milk of one cow, unless the exact circumstances and conditions are known, is not superior to the aggregate milk of the whole dairy.
7. Facts show that milk is the prolific source of many diseases now obscure, and unless careful inquiry is made into the condition and surroundings from which we receive our supply, we neglect a sanitary measure of great importance.

PATHOLOGY.

VALLIN ON SYMPTOMATIC MYOCARDITIS AND MYOSITIS IN SEVERE MALARIAL FEVERS.—Vallin communicates the results which he has arrived at on this subject after an experience of two years in Algeria (*L'Union Médicale*, 1874, no. 23). He was induced to examine the voluntary and cardiac muscles by the observations of Zenker, Virchow & Hoffman, Hayem, Desnos and Huchard, on the inflammations which occur in the myocardium and muscles in certain other fevers.

The author thus briefly estimates his own observations:—‘We do not advance another positive opinion; but we are able to say that we have frequently met with a histological alteration of the heart and voluntary muscles very similar to that in other pyrexias. This lesion appears to us to account for certain morbid phenomena in the course of the malady, and ought to contribute in a certain measure to the cause of death.’

In regard to the myocardium in malarial fevers, Vallin refers to its familiar naked-eye characters of flaccidity, yellowish discoloration, and extreme friability, and then sums up the histological alterations. In a first degree are observed absence of striation and transformation of the interfibrillar protoplasm into proteine granules, partly soluble in acetic acid; but this transformation, an acute one, is sudden, and not by any means to be compared with that vague granular condition affecting normal hearts, or indeed a commencing cadaveric disintegration. In a second degree, which frequently coincided with the first, there are fatty transformation of the proteine granules (insoluble henceforth in acetic acid); abnormal accumulation of pigment at the centre of the fibre near the nucleus, especially when the malarial poisoning has been old; increased friability of the granulo-fatty fibres, and real proliferation of the muscle-cells. These lesions always occur in small disseminated foci in the muscular mass. They were unmistakably present in six cases out of ten.

In the voluntary muscles, according to Vallin, the appearances are very different from those just described. In one form the fibres are granular, like those of the heart; the striæ have disappeared, and they re-appear on treatment with acetic acid; the proliferation of the muscular nuclei is active and general, and the nuclei rapidly become granular; and the fibres become unequal, some being swollen and fusiform, and others atrophied. In a second form we meet with all the degrees of the waxy degeneration of Zenker. It is the recti and pyramidales abdominis, the psoas, and the adductores femoris that are the favourite seat of these alterations. Of ten cases examined, the muscles in four had undergone waxy degeneration; in three they were simply granular, in the remaining three they were normal.

As for the symptomatology, it is possible that there may be some connection between these lesions of the voluntary muscles and a condition of excessive muscular debility, with emaciation and dull pains in the limbs, which is frequently observed after an attack of remittent fever. Cases of rupture of the rectus abdominis have been recorded by Cruveilhier and Leubuscher. The alteration of the myocardium ought to cause functional disorders similar to those first described by Stokes in typhus. Vallin found the pulse sometimes very frequent, sometimes exactly the reverse. Several authors have drawn attention to infrequency of the pulse during convalescence from severe malarial fevers, and Vallin asks whether this may not be referable to degeneration of the cardiac muscles, and to the subsequent repair. And some of the cardiac bruits, commonly called anæmic in these cases, may have the same origin. Should this be the case, we may hope to get equally good results from the employment of stimulants—especially alcohol and coffee—in severe malarial fevers as in typhus and typhoid fever.

J. MITCHELL BRUCE, M.D.

FELTZ AND RITTER ON THE ACTION OF CHLORAL ON BLOOD.—In a communication to the Paris

Academy (*Comptes Rendus*, Aug. 3) the authors enunciate the following conclusions from experiments on this subject.

1. A solution of chloral (titrated to a fifth) injected into a dog's veins, causes the death of the animal, if the dose exceed 0.25 grammes per kilogramme. The temperature falls some tenths of a degree, seldom one degree. The respiration, momentarily accelerated, is soon retarded, becomes tetaniform, and stops; and along with these phenomena may be observed a trembling of the respiratory muscles, great paleness of the mucous membrane, some convulsions of the ocular globe, and great dilatation of the pupil. The heart-beats increase in frequency, become irregular, and cease an instant after the respiration. Conscious sensibility disappears before reflex sensibility; the latter is followed by muscular atony. There is no lesion found in the blood or in the viscera; death appears to be due to the action of the chloral on the nervous centre which governs the respiration.

2. The effects produced are different when one injects into the animal only the dose of chloral necessary to anæsthesia, and maintains it in this state by successive injection of fresh quantities whenever the reflex sensibility appears to return. Death occurs after twenty-four or thirty hours at the most. The dose of chloral necessary to maintain anæsthesia continuously diminishes, and the interval of the injections is more and more extended; four or five hours before death all injection becomes useless. The number of inspirations and expirations diminishes slowly and progressively, and is at length reduced to five or six in the minute. The heart-beats are accelerated as the respiration diminishes; the pulse, small, weak, and thready, ceases to be perceived, while the noises of the heart still persist. The arterial tension, indicated by the hæmodynamometer, falls.

The temperature falls only one to six degrees (Cent.) during the first six hours; it rises again rapidly from this point. We have seen it reach seventeen degrees; nearly always death takes place between twenty-four and twenty-eight degrees.

The saliva flows abundantly during the first hours; it becomes exhausted from the time when the temperature and the tension are notably lowered. Urine and dung are excreted from time to time.

The urine contains hæmoglobin in solution, easily recognisable with the spectroscope. The search for colouring matters of the bile, by the most delicate methods, has always led to a negative result. In two cases we have found glucose, which reduced Barreswil's liquor, was rendered brown by potash, and fermented alcoholically with beer-yeast. The urine always remained acid. The red colour of the urine frequently coincides with ecchymotic spots in the digestive mucous. The lungs, the liver, and the kidneys, always hyperæmic, never presented infarctus.

The alterations of the blood are profound; the corpuscles, deformed, have lost their elasticity; the plasma presents a red colour, which increases more and more. The field of the microscope is rapidly covered with crystals of hæmoglobin. We may state that we have never observed the like after section of the pneumogastrics, though this operation brings on some phenomena similar to those which we have observed during chloralisation. The alteration of the blood is further shown from analysis of gases of the blood made at different periods of the chloralisation, and by the capacity of absorption of this liquid for oxygen, with which it is agitated. Without insisting on these various points, we content

ourselves with saying here that the arterial blood of a dog, shaken with oxygen, takes up 250 cubic centimètres per 1,000 before chloralised, and only 175 before death.

3. The toxic action of chloral is sometimes manifested after the waking of the animal, when the chloralised has been prolonged for a dozen hours, and the temperature has fallen to 30° Cent. (86° Fahr.). The alterations of the blood and the urine are then the same as we have described.

The waking of the animal is more rapid, the less the temperature and pressure have been lowered. Reflex and conscious sensibility appear in the first place; it takes two or three hours for the ataxic movements to be regularised.

We have found, in studying the products of respiration, that the greater part of the chloral is exhaled without being transformed. The product of condensation, a little milky, had not the least odour of chloroform, but, it reduced, in heat, an ammoniacal solution of nitrate of silver. This character is common to chloral and to chloroform; but a solution of this latter substance which should produce a reduction to the same degree as our liquid of condensation would have a manifest smell and taste of chloroform. The condensed product further renders green a mixture of bichromate of potassium and sulphuric acid; this character does not belong to chloroform but to chloral. We have been able to assure ourselves, also, of the presence of another organic substance, but the small quantity we have hitherto succeeded in isolating does not allow analysis.

ALEX. B. MACDOWALL.

MEDICINE.

EWALD ON A CASE IN WHICH CARBURETTED HYDROGEN WAS FORMED IN THE HUMAN STOMACH. The following case, communicated to the *Irish Hospital Gazette* by Dr. C. Ewald of Berlin, forms an interesting supplement to Dr. Schultze's paper published in the LONDON MEDICAL RECORD for August 12.

Towards the end of last year, a man presented himself, during the consulting hour of Dr. Frerichs, who declared that he had both a gas and a vinegar manufactory in his stomach. These, he said, worked alternately, so that at one time he brought up quantities of strongly acidulated matter, at another he belched quantities of gas which burnt, when a lighted match was applied to it, with a brilliant flame. In proof of this latter assertion, having twisted a piece of paper into a roll and placed it like a gas-burner in his mouth, he applied at the moment of an eructation a match to its end, when a brilliant bright-yellow flame, fully a foot long, burst forth.

There could be no doubt that we had here to do with a case of abnormal digestion, with the formation of stable and unstable products of fermentation: the question being, what was the nature of the latter. For though the eructation of inflammable gas from the stomach has already been observed, and the gas itself analysed (see the analysis of Carius and Popoff), still the colour of the flame has invariably been a pale-blue, showing the great preponderance of hydrogen; whereas, in this case, the yellow colour of the flame seemed to denote the presence of carburetted hydrogen.

The physical examination of the patient disclosed

a very distended condition of the stomach, to account for which it seemed probable that there was a narrowing of the pylorus, caused by the contraction of a cicatrix of an ordinary round ulcer.

As I have for some time devoted myself to gasometrical analysis, the chemical examination of the solid and gaseous excreta from our patient's stomach was confided by Professor Frerichs to my colleague, Dr. Russtein, and to myself.

The analyses were conducted in the usual manner, the gas being collected over quicksilver by means of a pipe from the patient's mouth, and gave the following volumetric results:

| | 1st analysis. | 2nd analysis. |
|---------------------------------------|---------------|---------------|
| Carbonic acid . . . | 17'40 . . | 20'57 . . |
| Hydrogen . . . | 21'52 . . | 20'57 . . |
| Carburetted hydrogen . . | 2.71 . . | 10'75 . . |
| Oxygen . . . | 11.91 . . | 6'72 . . |
| Nitrogen . . . | 46'44 . . | 41'38 . . |
| With traces of sulphuretted hydrogen. | | |

In some of the matter vomited by the patient some days afterwards, we were able to demonstrate the presence of lactic, butyric, and acetic acids, and some of their homologues (not, however, quantitatively determined), sugar and dextrose.

Under the microscope all the well-known elements of food undergoing fermentation in the stomach were observed, of which I will only mention some very large specimens of *sarcina ventriculi*, the yeast-fungus, and rod-shaped (*stäbchenförmige*) bodies, having the appearance of bacteria (the lactic-acid fungus of Pasteur?).

The irregular decomposition of the contents of the stomach takes, as is well known, one of two ways; either out of the starch, or the sugar it contains, lactic acid is formed, and from this again butyric acid, during which process, according to the chemical formula, equal quantities of carbonic acid gas and hydrogen are given off (the so-called lactic acid or butyric acid fermentation); or, the sugar, during the alcoholic fermentation determined by the yeast, is turned into alcohol, aldehyd, and acetic acid, during which process carbonic acid is given off. The nitrogenous elements seem to take no direct part in this process, but, if there is an insufficiency in the quantity of peptone present, they act indirectly as a ferment to set the process going. These two processes may go on simultaneously, as Budd held (*Diseases of the Stomach*), or the products of one process may remain in the stomach after the fermentation to which they owe their origin is finished, and has given place to the other. The fact observed in this case and other similar ones, that the products of both processes were found in the matter vomited, should not, therefore, surprise us. Similarly we can readily explain the presence of both hydrogen and carbonic acid in the gases ejected, their relative quantities being determined by the preponderance of the one or other fermentation, and the different co-efficient of absorption of the fluid contents of the stomach for each gas. The presence of nitrogen and oxygen is accounted for by all writers on the subject by the presence of atmospheric air swallowed with the food during the act of deglutition. With this view I agree, as in all my analyses the quantities of these gases present corresponded very nearly with their relative amounts in the atmosphere. The large amount of carburetted hydrogen (CH_4) in both cases, the gases analysed being collected at different times, is most striking, while no æthylen (C_2H_4), from 2 to 5 per cent. of which occurs in the flame of common house-gas, could be found.

Carburetted hydrogen or fire-damp (CH_4) has been found in the large intestine by many investigators (Magendie, Chevillot, Leuret, Ruge), so that one could suppose that by a reversed peristaltic action it might be driven backwards into the stomach. In this case there was, however, no such peristaltic action, and in any case I think the way from the colon to the stomach is too long to allow of such a thing being possible. It is much more natural to suppose that this gas is formed in the stomach under conditions similar to those under which it is found in nature, viz., the decomposition of organic matter in presence of a deficiency of oxygen. There was no doubt but that food taken by our patient remained an immense time in the stomach, for he sometimes vomited almost unaltered food swallowed five or six days previously, so that the contents of his stomach were in conditions very favourable for the spontaneous production of carburetted hydrogen.

The next question that presented itself was, whether a similar result would be obtained outside the body. To determine this, a number of glass receivers were filled with matter which had been vomited and allowed to ferment at a temperature of 98°F ; to some of these flesh, starch, and bran-meal were added; others were left without any such addition. The gases given off were found to contain carbonic acid, hydrogen, and nitrogen, but no carburetted hydrogen, which seems to prove that this gas depends for its production on the influence exerted on its contents by the walls of the stomach. Indeed, if we take into consideration the great difference there is between the glass receiver and the stomach as regards equability of temperature, secretion, and re-absorption of the gastric juice, and the circulation of the blood, this negative result will not cause very great astonishment. In any case the undoubted fact that considerable quantities of carburetted hydrogen have been produced in the human stomach is of great interest.

The treatment consisted in regulating carefully the patient's diet, and washing out his stomach by means of the stomach-pump. Under this treatment the discomfort he suffered was greatly lessened, and only once afterwards did he bring up inflammable gas, which, however, burnt with a blue flame. As he soon became quite an expert in introducing the stomach-pump, he has left us, and gone to the country to further recruit his health.

I will now draw attention to a very simple and readily available method of washing out the stomach, which I now always adopt, and which on account of its great simplicity, seems likely to make the topical treatment of diseases of the stomach, especially in cases of poisoning, much more common. A piece of ordinary India-rubber tubing, such as is used for gas-lamps, about six feet long, is used; one end is rounded, with a scissors, and if necessary, two holes are cut at a short distance from the end. This tube possesses quite sufficient rigidity to be passed without difficulty into the stomach. To the outer end a funnel is fitted, into which can be poured either water or a solution of soda, etc., according to circumstances. If the contents of the stomach are to be removed, the outer end of the tube must be sunk to a level of the pubes, or even lower; then the patient must make a short but forcible contraction of the abdominal walls. By this means the tube is filled to its highest point with the fluid contents of the stomach, and becomes a syphon; the liquid continuing to flow until there is no more, or till the tube is stopped up. This

last seldom occurs, if the tube be of a moderate calibre. Should it, however, happen, or should the abdominal pressure be insufficient to fill the tube in the first instance, or the patient be insensible, or any similar difficulty arise, it can, in general, be readily overcome by fitting a common clyster-syringe to the end of the tube, one stroke of the piston of which is generally sufficient to remove the difficulty. This method is evidently instantaneously available, provided that we can find a gas India-rubber tube; and has another great advantage, viz., that with it any mechanical injury to the soft parts is impossible.

In cases where the œsophagus is almost impervious from stricture, compression, or any other cause, I am in the habit of using very thin gum-elastic tubing, made especially for this purpose, within which a very thin piece of whalebone, like the stilet of a catheter, is introduced, in order to give it the necessary rigidity. The whalebone can be withdrawn without difficulty once the tube is passed. Since I have adopted this method, it is only during the first or second introduction of the tube that I have experienced any difficulty arising from the discomfort the operation causes to the patient.

SURGERY.

MCDONNELL ON THE TORSION OF BLOOD-VESSELS.—Dr. Robert McDonnell, surgeon to Dr. Steeven's Hospital, Dublin, has reprinted an article on this subject from Dr. Brown-Séquard's *Archives*. After a few preliminary remarks, and a brief reference to the history of torsion, the author states, 'Since the appearance of Mr. Bryant's memoir on the subject, in the *Medico-Chirurgical Transactions*, 1868, it has been practised by my colleagues and myself in Dr. Steeven's Hospital, Dublin.' He quotes 'with great satisfaction the words of Mr. Colles, as expressing our joint experience. For the last six or seven years, in Steeven's Hospital, my colleagues and I have seldom resorted to any other means of arresting hæmorrhage, even from the largest vessels, and we have never had reason to regret the adoption of the practice.'

After advising any one desirous of making himself expert in the art of torsion to begin by experimenting on the dead subject, he adds, 'It is obvious that torsion is not to be applied to all kinds of vessels in exactly the same manner. Experience teaches us that we must adopt somewhat different expedients in securing by torsion vessels differing in size and position; the greater or less laxity of the tissue which surrounds the vessel, the character of its sheath, etc., all make it necessary to modify somewhat the mode of procedure. The surgeon should have at hand, therefore, several varieties of torsion-forceps, since a pair well suited to twist one vessel may not answer so well for another.'

For vessels about the size of the radial or ulnar, he advocates toothed forceps, such as those generally known as 'Syme's torsion-forceps.' 'The vessel is to be seized right across its open mouth, and drawn out a little; it is then caught just beyond the forceps, between the thumb and forefinger of the left hand, so that the nail of the thumb may give it a good pinch, and nip through the internal tunics; then twist, and all is secure.' [In the reporter's experience, this part of the operation is unnecessary. Some surgeons' nails are anything but clean, and are therefore ill-adapted for such close contact with part of a wound;

and again, some nails are too stumpy to be available for such a proceeding, even if it were a necessary one.—*Ref.*] 'The end may in the case of such vessels be twisted off or not, as the operator pleases.' If the vessels be surrounded with a large quantity of lax areolar tissue, Dr. McDonnell recommends a pair of forceps, one end of which carries three small teeth, to fit between four teeth of the same size on the other end. The procedure consists here, again, of three steps, catching the vessel, nipping it, and torsion. 'Such vessels as the brachial, femoral, or popliteal, are in general very readily secured by torsion;' but in amputations 'in the neighbourhood of diseased structures, sinuses, etc.,' where parts are 'unyielding, it is by no means easy to get space enough beyond the ends of the first or grasping forceps to apply the second or nipping forceps. Under these circumstances, I adopt the following expedient. I place a silk ligature around the vessel immediately beyond the ends of the grasping forceps. This ligature I pull home until it snaps across. To make sure of accomplishing this with some facility, I have the silk fixed on little wooden cylinders, so that it can without hurting one's fingers be pulled home until it snaps across. It invariably snaps close to the knot (half), and is to be pulled off and cast aside. We thus accomplish by a snapped ligature what is done in other cases by the nipping forceps, and then proceed to twist; three or four half turns are sufficient for the femoral, and I always, in this case, leave the end still standing.' This mode, the author states, is very effectual, 'and is applicable to vessels of all sizes which are unmanageable in other ways.' 'In fact, no readier way of securing ordinary-sized arteries can be suggested than to put on, first, a silk ligature, and then to seize the knot in a pair of torsion-forceps, and twist it off. The vessel is perfectly secured, and there is no foreign body left in the wound. Large wounds are often then found healed on the twelfth to the fourteenth day; that is about the time that, in cases where a bundle of ligatures have been left in a wound, these are beginning to separate.' With respect to Dr. Addinell Hewson's forceps, designed to execute the double manœuvre of nipping the coats and grasping the vessel to twist it, Dr. McDonnell states that he has used a pair presented to him by their inventor. He has 'had several opportunities of using them, and found them to do their work satisfactorily on vessels not surrounded with brawny, tough, infiltrated structure. Where, however, this condition exists, or, in fact, wherever there is any difficulty in drawing the vessel out a little from the surrounding structures, Dr. Hewson's forceps are open to the same objection as arises in attempting to use the cross-nipping forceps.' There is not space enough to apply them and to nip properly beyond the ends of the grasping forceps. [Mr. Bryant, in *The Practice of Surgery*, describes only one pair of forceps as necessary for the operation of torsion even on large vessels. The reporter has not been in the habit of employing more than one pair of forceps for the process, which has consisted of seizing, grasping (without nipping), and torsion.—*Ref.*]

JOHN CROFT.

RAVOTH ON THE TREATMENT OF VARICOCELE BY TRUSS-PRESSURE.—Dr. Ravoth (*Berliner Klinische Wochenschrift*, no. 19, 1874) alludes to a former publication on this subject, and states that his recent experiences of the pressure-treatment of varicocele

have been so favourable that he feels compelled to again direct attention to this method, and to recommend its practical application. He has also found the use of a truss useful in cases of varicosity of the leg, and for the relief of distressing irritation of the male genital apparatus, causing excessive pollutions and inducing onanism. With regard to the etiology of varicocele, Dr. Ravoth has not been able to decide whether there be any hereditary tendency to the affection. Its almost universal occurrence on the left side he attributes to the anatomical fact that the left spermatic vein opens at a right angle into the left renal vein, whilst the right spermatic vein opens at an acute angle into the ascending vena cava. He opposes the view that varicocele may be caused by the pressure of a hernia or of a truss, and holds that varicosity of the lower limbs is not due, as it is generally supposed, to such conditions as favour venous stasis. Out of fifteen hundred cases of left-sided inguinal hernia observed by the author, not one instance of well-developed varicocele was found. The main cause of varicocele, according to Dr. Ravoth, is irritation of the male genital apparatus, which is dependent on the development of puberty. This irritation, and not the consequent varicocele, is believed to be the cause of pollutions, onanism, and early and excessive use of the genital organs. Whether the irritation induces dilatation of the spermatic veins by leading to increased flow of blood and relaxation of the cremasteric muscle and the dartos, or whether impairment of the influence of the trophic nerves should be invoked, cannot be determined, the author thinks, without further observation and experimentation. With regard to prognosis, it is stated that varicocele in the majority of cases does never attain any great size, and that patients who do not suffer from pain content themselves with wearing a suspensory bandage. To what extent in the slighter and common forms of varicocele the testicle is impaired in growth, consistency, and function still remains to be strictly determined. Varicocele, when large, is associated with severe pain and excessive irritation of the genital apparatus, which, indeed, according to the author, is the primary cause of the venous enlargement. Dr. Ravoth recommends that the truss be always worn except when the patient is in bed, and that for two or three hours during the day the pressure of the pad be increased by accessory springs. Under the influence of this treatment the varicocele becomes smaller, and any pain from which the patient may have suffered, ceases. These facts can be explained only by acceleration of the circulation in the spermatic veins. At the same time the testicle is drawn upwards towards the external abdominal ring. The author holds that the favourable action of the truss pressure is to be explained by this acceleration of the venous circulation, and in the increase of the impaired irritability and arrest of the morbid irritability of the muscular and elastic structures. Dr. Ravoth objects to surgical operations in cases of varicocele, as he thinks that, like the so-called radical cures of hernia, they often fail and are not free from danger.

Dr. Ravoth asserts that, in some cases of phlebectasis of the saphenous vein, truss-pressure applied to the vein crural, below Poupart's ligament, will produce a cure. Recent cases, however, must be selected, and the surgeon must not expect a very favourable result if the venous enlargement have lasted for many years, and if there be extensive thickening of the walls of the distended veins, and degeneration of the surrounding connective tissue. The wearing of a truss

has been found useful also in cases of morbid irritability of the male genital apparatus. It should be remembered, however, that this irritability will not always be amenable to such treatment, as its conditions are often very complex, and its primary cause may be seated in the gastric or in the uropoietic organs.

THIERSCH ON THE HISTOLOGICAL CHANGES WHICH TAKE PLACE IN THE HEALING OF WOUNDS OF THE INTEGUMENT BY GRANULATION.—Herr Thiersch (*Archiv für Klinische Chirurgie*, Bd. xvii.; *Berliner Klinische Wochenschrift*, no. 29, 1874) was induced by the results of Reverdin's discovery to transplant epidermis, in the case of a man whose leg had been extensively stripped of skin in consequence of a scald. The result was favourable, and the patient left the hospital. He soon returned, however, with as much deficiency of skin as before, and wished for amputation of the leg, which indeed was indicated. The author took advantage of this opportunity for making fresh investigations on the process of healing. Before the removal of the limb he practised fresh transplantation of skin, and thus was able to observe closely in the amputated member the course of the healing, starting from pieces of skin placed on a granulating surface.

The following are the results. 1. The adhesion takes place without the formation of any intervening substance. 2. In the course of eighteen hours there is complete union, through inoculation of the vessels of the granulations and those of the superimposed piece of skin. 3. Not less speedily do the vessels of the transplanted portion of skin undergo a secondary change, through which they more or less assimilate in structure the vessels of the granulations. 4. In many instances the whole thickness of the transplanted skin does not remain fixed, but only the inferior layers, the upper portion being thrown off as a slough. Eighteen hours after the transplantation, the capillaries of the transposed skin may be injected from the granulations. This proves that a vascular connection has taken place. These vessels do not remain intact, but in the course of the third or fourth week return to their former condition. After the fourteenth day epithelium makes its appearance, which the author holds to be the product of the sweat-glands contained in the transplanted portion of skin. The results of Reverdin's method are generally temporary, because the granulating surface cannot be closed, and the natural restorative processes of the organism become exhausted. The injured part having been exposed to the casualties of daily life, the cicatrix breaks down sooner or later. So long as there is no method of applying the portion of skin securely, and the vertical portion of the granulations cannot be removed until a part is exposed which is adapted for union, the result of the transplantation will always be doubtful. It has hitherto been overlooked that blood left on the wounded surface may constitute an obstacle to union. In order to avoid this, the vertical portion of the granulations should be cut away with a sharp knife, and Lister's protective dressing be used. Then no fungus remains, and retraction does not follow.

W. JOHNSON SMITH.

MOLLIÈRE ON THREE REMARKABLE CASES OF DISLOCATION.—M. D. Mollière, of the Hôtel-Dieu, in Lyons, relates (*Lyon Médical*, no. 14) the following cases.

Case 1. *Complete Luxation of the Left Elbow-joint outwards; Reduction.*—This occurred in an idiot, aged forty. The region of the left elbow was swollen, painful, and presented the following appearances. (1) The forearm was flexed upon the arm at an obtuse angle; (2) there was a considerable enlargement of the elbow transversely; (3) the capitellum of the radius was plainly seen beneath the skin, externally; (4) the ulna was not plainly felt, owing to its being hidden by the prominence of the radius; (5) internally was a well-marked eminence, formed by the articular extremity of the humerus, which was readily felt, beneath the integument, in all detail. The anterior aspect of the humerus looked directly *inwards*. Reduction was made, without an anæsthetic, by direct traction and flexion. The bone had been dislocated for three days. The excessive rarity of this accident renders it worthy of record. Nélaton reports one case only in his *Pathologie Externe*.

Case 2. *Dislocation of the Right Femur on to the Dorsum Ilii, of fifty days' standing. Reduction by Pouteau's Method.* A man, aged sixty, fell from a tree, and dislocated the head of the thigh-bone on to the dorsum ilii. On presenting himself at the Hôtel-Dieu, all inflammatory symptoms had disappeared, and the amount of shortening was rendered appreciable by Giraud-Teulon's method of triangles, thus—

| | Sound side. | Injured side. |
|---|-------------|---------------|
| From the anterior superior iliac spine to the ischium . . . | 18'50 | 18'50 |
| From the anterior superior iliac spine to the external condyle of the femur . . . | 47'50 | 44'50 |
| From the ischium to the external condyle of the femur . . . | 40'50 | 40 |

Chloroform being administered, Pouteau's method was first tried without success; and, on breaking up the adhesions direct traction was tried, and failed, and so also did Jarvis' apparatus as modified by Matthieu, both with the limb flexed and extended. A last attempt, however, by Pouteau's method, succeeded, an assistant's hand being placed between the front trochanter and a solid *point d'appui* placed immediately behind it. M. Mollière employed flexion, rotation, and then abduction, and employed considerable force in this latter movement, using a lever, having as its power the shaft of the femur, its fulcrum the trochanter, and weight, the head of the femur. The distinct presence of the head of the femur lying amongst the soft parts, and the inguinal depression being clearly marked, convinced M. Mollière that he might reasonably employ such severe measures for so considerable a time, notwithstanding the patient's age, since the obstacle lay exclusively among the soft parts, and there was no malformation.

Case 3. *Compound Fracture of the Right Tibia and Fibula; Dislocation on the Dorsum Ilii, with severe Contusion of the Trochanteric Region; Injury to the Face; Cerebral and Spinal Complications; Reduction by Pouteau's Method; Recovery.*—The patient was a boy, aged fourteen, who fell from a building. On admission his symptoms were so serious that M. Mollière, believing death imminent, applied a silica bandage, with the view of alleviating his suffering, without further examination, and placed the limb on a Bonnet's splint. He improved by degrees, and, on an examination made on the sixteenth day, a complete dislocation into the dorsum ilii was detected. Ether was administered, and an assistant instructed to follow the movements of M. Mollière by sustaining the fractured limb, which was enveloped in its apparatus.

The process of reduction was commenced, and it was decided not to prolong it for fear of breaking up the uniting fracture, so the assistant placed his hand behind the trochanter, whilst M. Mollière made the flexion, rotation, and forced abduction. The bone entered the cotyloid cavity immediately.

EDWARD BELLAMY.

BERTI ON GASTROTOMY FOR INTERNAL STRANGULATION.—Professor Berti, of the Leghorn Hospital, in a memoir of which an abstract is given in *Lo Sperimentale* for July, describes the case of a man, aged about sixty, the subject of an old right inguinal hernia, which he had always kept up by means of a truss. During a violent effort, he suddenly felt pain in the groin which was the seat of the hernia; and intestinal obstruction, with distension of the abdomen, hiccough, and vomiting of food (but not of faecal matter) set in. From a careful examination of the case, Dr. Berti arrived at the conclusion that the obstruction was caused by a constricting band acting on a part of the bowel not very near the stomach. He accordingly made an incision about four inches long, and laid open the inguinal canal. Here he found a hard mass of omentum, from which proceeded a cord, passing into the abdomen by the internal ring, which guided him to the constricting band. The finger being introduced, this band was divided by means of a knife, and the intestine was set free. The cord was then drawn out and cut off. It was a little time before the bowels recovered their power of acting, and an oleaginous purgative was required, but the patient was quite well in less than a month.

A. HENRY, M.D.

MATERIA MEDICA AND THERAPEUTICS.

FORMENTI ON THE SUBCUTANEOUS INJECTION OF CALOMEL IN PNEUMONIA.—Dr. Achille Formenti, in an article in the *Gazzetta Medica Italiana-Lombardia* of August 8, says that, having observed the good effects of the internal administration of calomel in cases of pneumonia, but having found also that the medicine was not always well borne by the patient, he determined to make trial of subcutaneous injections. In the course of the year, however, he had but few cases of pneumonia; and the number on whom he had had an opportunity of trying the method was very small (six only), in consequence of the repugnance of the country people to anything novel. The patients were males, from twenty-five to fifty years of age; all were of lymphatic and cachectic habit (as is generally the case in the part of Lombardy where he practises), except one young man aged twenty-seven, who was robust and of sanguine temperament. At his first visit, when the patient was in a state of high fever, with burning heat, difficult respiration, dry cough and scanty expectoration, and pain in the chest on the side corresponding to the lung affected, after having established the diagnosis by percussion and auscultation, Dr. Formenti injected into the arm from ten to twenty centigrammes (1 to 3 grains) of calomel in fifteen drops of water, according to the age and the special condition of the patient. He also in some cases applied a few leeches over the seat of pain, as a revulsive; he did not bleed the patients, and gave no medicines internally, but only some refreshing

diuretic drinks. In every case, on his visit next day there was marked improvement both in the general symptoms and in the physical organs, and it seemed to him that the course of the disease was shorter than when the usual treatment was followed. In one patient only, the robust young man already mentioned, there was a relapse at the end of seven days. The injection of one and a half grains of calomel (three grains having been used for the first attack) produced permanent relief. Dr. Formenti did not meet with the production of abscesses or of salivation in any of the cases; and in all, when examined some time afterwards, there was no indication of hepatisation; all breathed as freely as before their illness.

Dr. Formenti says that he will repeat the practice as opportunities are offered, and begs his professional brethren to make trial of the method which he describes; especially the district medical officers, who, as a rule, have the opportunity of seeing cases of pneumonia in an earlier stage, and under less complicated circumstances, than hospital physicians.

A. HENRY, M.D.

ADAMS ON THE INFLUENCE OF ALCOHOL AND TOBACCO ON THE HEART.—Dr. A. Leith Adams, in an article in the *Lancet*, remarks that nowhere can the thoracic sounds be better studied than at a large recruiting dépôt. He says: 'It is indeed curious, as well as interesting and instructive, to note the vagaries in cardiac sounds alone. These, although in no ways so varied as the causes to which they owe their existence, are sufficiently conflicting. Thus, frequently, between exciting and depressing influences of one kind or another, it is very difficult to say how far abnormalities are ascribable to temporary and to organic derangements. Under such circumstances, cases often occur apart altogether from the morbid sounds when the heart's rhythm is perverted. I can give no better definition than a muffling of the two sounds, or what might ordinarily be called 'a variety of irritable heart,' occurring, however, occasionally in subjects not naturally of an excitable temperament. From these persons it was very often readily elicited that they were given to an excessive use of tobacco, either by smoking or chewing, or the two combined, accompanied, in many instances, by drunken habits. The amount of tobacco consumed daily, was ordinarily half an ounce, and often nearly a whole ounce. From constantly observing cases of this description, and invariably associating them with the above causes, I desired several recruits to abstain entirely from tobacco and alcoholic drinks for a week, and return for inspection. In three or four instances out of ten all the symptoms disappeared; whilst in the cases where there was little or no improvement, it was more than probable that the injunctions were not carried out properly. I do not know if this want of clearness in the systolic and diastolic sounds is to be detected in every instance of the excessive use of tobacco or of alcoholic drinks; but judging of the prevalence of the state in question among Londoners (chiefly indoor workmen and persons leading sedentary lives) it would seem to be pretty general.'

A RICHLY ENDOWED HOSPITAL.—From a report recently published by Mr. C. L. St. John on the history and present state of Moldavia, we learn that Jassy, the capital of that principality, contains five hospitals. The largest and richest of them is the hospital of St. Spiridon, of which the revenue is nearly 50,000*l.* per annum.

OPHTHALMOLOGY AND OTOLOGY.

HECKEL ON DEPOSITS OF METALS IN THE CORNEA, AND THEIR TREATMENT BY CHEMICAL REAGENTS.—The *Journal de Thérapeutique*, no. 8, April 25, 1874, contains an article on this subject, which is considered by the author, Dr. Heckel, to have been very insufficiently treated of in our standard works on ophthalmology, although cases where such deposits have taken place are frequently to be seen in our out-patient rooms. The paper contains the results of eight years of study and of practical experiment, which have convinced Dr. Heckel of the value of treatment founded upon chemical reaction. When we bear in mind the treatment of keratitis in ancient times, and the many and various local applications which were indiscriminately employed, it is remarkable that writers in the eighteenth century such as Maître Jean, Anel, Janin, Petit, and Daviel should make no mention of the occurrence of such metallic opacities, which would have been, one would suppose, more frequent than in later times. Later on even Scarpa makes no sign, and, on the contrary, recommends applications of lead and zinc in ulceration of the cornea; and so Wittelen-Benedict (1811), Saunders (1816), Himly and Langenbeck (1818), and Demours and Quadri are all equally silent on the subject. The first mention of the danger of using lead and other metals in affections of the cornea has been ascribed to Weller; but the first formal notice on record is by Mackenzie (1843). From 1830 to 1872, however, so little mention is made of the subject even in the works of our most accomplished surgeons, as to warrant the belief that the occurrence is comparatively a rare one.

Dr. Heckel speaks of two varieties of such deposits;

1. Deposits arising from the prolonged use of nitrate of silver, salts of lead or of zinc, either in solution or in the solid form;

2. Deposits from accidental application of lime and other caustic substances.

Both varieties are to some extent remediable, but by very different treatment. He speaks of the latter variety first, and calls special attention to the writings of Gosselin (*Archives Générales de Médecine*, November, 1855), in which are described the results of the accidental application of caustic lime to the eye, a frequent occurrence amongst bricklayers. Dr. Heckel says that plasterers are exposed to similar dangers from plaster of Paris, and he records an instance which he had met with in 1870. A little of the plaster in powder had been dusted into a man's eye by a comrade, and the entire cornea had at once become opaque. In the case of caustic lime there is said to be formed a genuine eschar, due to the entire destruction of the tissues, the salts of lime becoming actually infiltrated throughout them; with the gypsum, on the other hand, there is merely a combination of the powder with the water within the tissues, and when once it has become sufficiently hydrated the plaster is rendered inert, and does not invade the deeper tissues.

The effect of the two substances was studied by experiments upon the eyes of young animals; and the result of these, and the subsequent examination of microscopical sections, have enabled Dr. Heckel to verify the distinctive actions of the two substances.

The action of gypsum is to combine with the water of tissues, and when once it is saturated, is at an end, causing a limited opacity, and not infiltrating the cells in the deeper layers of the cornea.

The action of caustic is over and above the mere combination with water; the tissue attacked is rendered amorphous, and the deeper layers are infiltrated with, and rendered opaque by, the imbibition of salts of lime.

In neither of these kinds of opacity can any treatment by local applications be of any service.

Opacities occurring, as in class 1., from the deposit of some metallic salt, and, in particular, those of lead or of silver, are more frequently met with, but are limited in extent, and, according to Dr. Heckel, are more within reach of treatment. Under ordinary circumstances they cannot occur without some lesion to the cornea, by which the metal can gain access; and, as the power of the tissues to reduce metals is in proportion to their own thickness and density, so we find that the deeper layers are the chosen seats of these opacities, and thus an albugo or a leucoma is formed rather than a nebula. Dr. Heckel verified these observations by the formation of ulcers, of various depths, artificially produced and injected with solutions of lead. The injection of salts of silver produced similar, but less marked, results.

The opacities caused by deposit of resinous matters would be superficial, of a characteristic red or brown colour, and were even common formerly when it was the custom to use local applications containing balsams of various kinds. The resinous material is not dissolved, and is unable to enter deeply into the tissues.

With regard to treatment, Dr. Heckel complains that our best authors have little or nothing to say; but, as the result of his own experience and experiments, he feels strongly that much benefit may be derived from a prolonged application of reagents. Thus, for the opacities caused by the salts of lead, he recommends the use of solutions of acetate of soda; for those of silver, the hyposulphite of soda. The salts of potassium would answer the same purpose; and the resinous deposits will yield to the frequent application of solutions of alcohol.

GRANDCLEMENT ON PULSATION OF THE RETINAL ARTERIES IN AORTIC DISEASE.—The appearance of pulsation within the retinal veins is well known, but when met with in the arteries it is generally accepted as an indication of disease. Most observers agree with Von Graefe in the belief that its occurrence implies an increase in the intraocular tension. The author of this paper considers this explanation to be by no means complete, inasmuch as the phenomenon has lately been associated with aortic diseases. The first observation to this effect was that of Quincke (1868); and independently, an observation of a similar case was communicated (1871) to the Ophthalmological Congress at Heidelberg, by Otto Becker; and in an article entitled 'The Movement of the Blood Visible in the Human Retina,' and published in the *Berlin Archives* (1872), Becker has recorded seventeen cases of its occurrence with heart-disease. In cases of aortic insufficiency, with or without hypertrophy of the left ventricle, Becker has observed pulsations in the arteries of the optic disc; and in a case of supposed aortic disease in which the pulsation could not be detected, the subsequent necropsy revealed an aneurism of the ascending aorta, with no

disease of the aortic valves ; on the other hand, the occurrence of pulsation enabled Becker to correct a diagnosis of aneurism where there was in fact disease of the aortic valves.

Dr. Grandclement (*Lyon Médical*, June 7, 1874) has been able to verify these observations of Becker, in the case of a young woman aged twenty-seven, who was in the last stage of heart-disease ; the heart's action was feeble and irregular, and its two sounds were almost obscured by a loud double murmur, which was prolonged into the carotids. The phenomena of pulsation were very evident in both the branches of the central artery of the retina ; it should be said, however, that the appearances were rather those of alternate filling and emptying than those of true pulsation, for during the heart's diastole these vessels were reduced to mere threads, and during the systole they regained their usual size and colour. No other intraocular lesion could be detected, and, except of an occasional passing dimness of vision, no complaint was made.

The occurrence of a visible arterial pulsation within the eye when in perfect health, has been noted in some instances by Donders. The observations of Helmholtz do not support the fact of its occurrence, and some experiments made by Becker upon the mesentery of frogs would seem to contraindicate it. In these experiments the action of the heart was seen to produce an acceleration in the movement of the blood, but not an actual pulsation of the blood-vessels ; only when a vessel divided into others of lesser calibre could any pulsation be detected, and, in consequence, Becker asserts that when arterial pulsation is observed in the healthy eye, it is either transmitted from the adjacent veins, or it occurs at the bifurcation of the arterial trunks. He gives, however, no explanation of its occurrence with heart-disease, which Dr. Grandclement thinks can be explained as follows. He supposes that in a state of health the intravascular tension and the intraocular tension are so evenly balanced that no pulsation or alteration in the size of the arteries can be detected ; when, however, the harmony between these is disturbed, either by the increase in the one, or by the depression of the other, the phenomena of pulse are at once apparent. Thus when the intraocular tension is increased, as in glaucoma, the calibre of the arteries during the heart's diastole is considerably reduced, and during the systole is again restored ; by reversing the order of things, and supposing the intraocular tension to be normal, and the intravascular tension to be depressed, as in the later stages of aortic disease, the same appearance of pulsation would be noticed.

The explanation, then, of the pulsation of the retinal vessels in glaucoma and in cardiac disease, consists in the want of harmony between the intraocular tension and the intravascular tension in the arteries upon the optic disc. In the same way Dr. Grandclement explains that a retinal pulse should occur in cases of rapid and abundant hæmorrhage.

BOWATER J. VERNON.

LE FORT ON THE APPLICATION OF THE CONTINUOUS CURRENT, WEAK AND PERMANENT, TO THE CURE OF OPACITIES IN THE CORPUS VITREUM.—In *L'Union Médicale* for July 9, 1874, Dr. Léon Le Fort relates the results of his treatment of opacities of the vitreous humour by the continuous current. In one case, where the patient had been blind in one eye for several years, and in the other for several months, on account of opacities

of the vitreous body, about six weeks' treatment completely re-established vision. In a case of optic neuritis, treated at the end of last year by M. Le Fort with little benefit, and in which, after leaving the hospital, the vision became so weak that the patient could scarcely determine the position of the window, the application of the rheophores, one on each temple, of a current of two small elements of Morin, enabled the patient in three weeks to write a letter, in six weeks to thread a needle easily, and completely re-established his sight. M. Le Fort is applying the same treatment to cataract and atrophy of the optic nerve, but, as his experience is too recent, he cannot yet give results.

W. LAIDLAW PURVES.

MISCELLANY.

RABIES MEPHITICA.—The Rev. C. Harvey, in a paper under this title published in the *American Journal of Science*, describes the bite of the skunk as nearly always fatal, from the character of its salivary secretion, which is poisonous, either from the effects of a common disease, or in its normal state. The author says that the skunk is much dreaded in the Western States, as it is a nocturnal animal, and bites without warning.

CREMATION IN EARNEST.—The municipality of Vienna has, by advice of the Board of Health of the city, decided that the cremation of the dead should be immediately carried into operation on the same plan which has been completely successful in Leipzig. As the annual mortality of Vienna amounts to about 20,000, the public authorities reckon on making a great saving as well as a considerable benefit to the public health.

A GREAT PRIZE.—The French Government has practically testified to the importance they attach to the eradication of that insect plague, the phylloxera, by offering a prize of 300,000 francs (12,000*l.*) to the inventor of an efficacious method for its destruction, or for the prevention of its ravages. A commission to be named by the Minister of Agriculture will determine the conditions on which the prize is to be awarded, and decide if any of the methods proposed are worthy of the reward offered.

THE FIRST JAPANESE M.D.—Susum Sato, son to the private physician of the Mikado of Japan, has lately received his M.D. degree at the University of Berlin. Our Japanese *confère* passed a very creditable examination, read a dissertation on diarrhoea in young children, and sustained his various theses with great ability, and in very good German. He then addressed the usual application in Latin to the authorities for his doctor's degree, which was duly conferred on him after some compliments from the Dean on the circumstance of his being the first of his countrymen admitted to this distinction.

THE INFLUENCE OF POLITICAL AND SOCIAL DISTURBANCES ON MENTAL DISEASE.—Dr. Lunier, Inspector-General of the French Lunacy Department, has recently published the results he has obtained from a careful study of all the statistical documents he has been able to collect on insanity in France during the years from 1869 to 1872. He has arrived at the conclusion that although during that trying period for Frenchmen from 13,000 to 14,000 cases of mental disease were registered, yet the number of patients confined in private asylums was much below the usual average. A similar fact was observed in 1848, which, taken in connection with the state of things observed by Dr. Lunier, would make it appear that political or social crises, instead of, as is generally imagined, augmenting the number of insane persons, really diminishes it.

MODERN PATRIARCHS.—The *Allgemeine Medicinische Central-Zeitung* reports the death, at Exin, of Madame Klausner, widow of a rabbi, in the 110th year of her age. Her husband, at the time of his death in 1861, was more than 100 years old.

UNIVERSITY OF VIENNA.—The total number of matriculated students in the University of Vienna during the year 1873-4 was 7,526; of whom 1,109 were medical students in the winter session, and 1,036 in the summer session. The number of new entries in the medical department was 194. Among the largest medical classes were those of Professors Brücke (885); Hyrtl (680); Bamberger (540); Billroth (509); Dumreicher (495); Rokitsansky (354).

A SCIENTIFIC PRACTICAL JOKE.—In a little work entitled *Recuerdos de Humboldt* (Recollections of Humboldt), the author, Dr. Aristides Rogas, relates what he terms *un incidente gracioso*, which happened to Humboldt at Calabogo. On approaching the llanos he was very anxious to obtain information about the electrical eels (*tembladores*) which abound in the rivers of the district. For this purpose he arranged to visit an eccentric student of electrical science, who before the appointed time contrived with some ingenuity and great difficulty to place one of the animals in question *en rapport* with the knocker on his study door. The servant, as desired by his master, directed the illustrious visitor to rap, and on his doing so a discharge of electricity took place throwing him to the ground. The narrator goes on to state that Humboldt received this practical information as to the nature and amount of the electricity generated by the *tembladores* with all the equanimity of a philosopher in search of knowledge.

ST. ANDREWS' MEDICAL GRADUATES' ASSOCIATION. The committee appointed at the last meeting of the members held December 30, 1873, met on Friday, July 31. Dr. B. Ward Richardson in the chair. The treasurer (Dr. Paul) reported that after payment of the working expenses and the cost of the transactions, there still remained a balance in his hands of 60*l.* 1*4s.* 1*d.*, although 78 members had not yet paid their subscriptions. It was resolved:—1. That a sum of twenty-seven pounds be voted out of the surplus for the 'Mrs. Day' fund. 2. That a sum of ten guineas be applied out of the surplus to give a trifling recognition to Dr. Paul for his valuable services as treasurer during the existence of the Association. 3. That the balance of the surplus be placed in deposit in the names of Drs. Richardson and Paul, to meet any future contingencies arising in connection with the University Committee of the Association. It was also resolved that the subscriptions at present unpaid should be forwarded to Dr. Paul for the same purpose.

A VICTIM TO DUTY.—Advices from Tripoli contain details of the death of Dr. Laval, staff-surgeon in the French army, who has recently fallen a victim to his disinterested labours during the late outbreak of plague at Benghazi. It appears that M. Laval had taken advantage of a furlough to devote himself to scientific researches in the regency of Tripoli. Hearing that the plague had broken out in the environs of Benghazi, he immediately hastened to that locality, where finding himself the only medical man, and the only European on the spot, he in co-operation with the local authorities, promptly adopted measures to check the progress of the epidemic; at the same time devoting his utmost energies to the care and treatment of the plague-stricken peasants. His unbounded devotion to his self-imposed duties unfortunately proved fatal to him. Attacked by the disorder he was attempting to combat, he succumbed to its effects with manly resignation after six days' illness. The death of M. Laval naturally produced a profound impression of sorrow amongst the people whom he was so nobly trying to serve; the whole population of Benghazi, wishing to testify their regard for his memory,

were present at his obsequies, which were celebrated with well-deserved solemnity in the Catholic church of the place.

CONTAMINATION OF AERATED WATERS.—The case of lead-poisoning by soda-water, reported this week by Dr. Wilson of Campsie, which has attracted public attention, has a close parallel in the results reported a few months ago by an eminent London hospital physician in the *British Medical Journal*. In that case also, the examination of a number of specimens of aerated water, in the laboratory of Messrs. Savory and Moore, proved them to be all dangerous to health. These waters were sold in syphon-bottles, in which the danger of metallic poisoning (from the avidity with which alkaline waters charged with free carbonic acid will attack metal) is much greater than in the case of waters sold in ordinary glass bottles. There is, however, a much greater and more common danger in the artificial aerated waters of commerce than that of metallic poisoning. Chemical examination has proved what the palate, though without discovering the reason, will often detect; that a great number of these waters are made with well-water which is highly contaminated with organic matter—in fact, laden with sewage. It is not very uncommon, on opening a bottle of soda or seltzer-water which has been kept long, to find that it positively stinks, and a very perceptible flavour of sewage is quite common in these bottled artificial waters. The whole subject was investigated a few years ago by the medical paper which we have already mentioned; and the result of the chemical examination was to show, first, that what is sold as soda-water is commonly, in fact, generally, not soda-water at all, or in any way alkaline or antacid, but gaseous water; and secondly, that the average purity of the water itself was considerably less than that of London drinking water, and that some of the samples purchased and examined were excessively foul, in truth, little better than aerated ditch-water.

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The London Medical Record.

WEDNESDAY, SEPTEMBER 2, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

THE PROGRESS OF BIOLOGY. By PROFESSOR REDFERN, M.D.*

I consented to allow myself to be nominated President of this Section in compliance with the kindly expressed wishes of scientific friends, notwithstanding that I felt that the duties of the chair would have been more fitly discharged by many who have attended the meetings of the Association more regularly, and laboured to promote its objects more continuously than I have been able to do.

Fortunately, the increasing importance and the vast extent of the subjects comprised under the head of Biology have led to a division of the business of this section into the separate departments of Anatomy and Physiology, Botany and Zoology, and Anthropology; and it is a great relief to me that the departments of Botany and Zoology, and of Anthropology, respectively, will be presided over by gentlemen of the highest eminence in those subjects, and that anatomy and physiology, in which I am more immediately interested, will alone come under my direct supervision. It has occurred to me that, in attempting to give a stronger impulse and a more systematic direction to scientific inquiry, the time ordinarily devoted to an introductory address could not be more profitably occupied than by bringing into as great prominence as possible some of the great revolutions in our knowledge of anatomy and physiology which have taken place in my own time and under my own immediate observation.

I remember, as if it were yesterday, the elucidation in the Museum of the Royal College of Surgeons of Edinburgh, of the newly discovered cell-theory, by the late distinguished Professor of Anatomy in Edinburgh, John Goodsir—his account of the production of ulceration by cell-growth, of the characters of the corpuscles of bone, of the structure of lymphatic glands, and of the germinal centres of basement-membranes as they were then understood. This was the time when the teaching of histology was first established in Great Britain. Two students, of whom I was one, formed the first class under the most enthusiastic of teachers, my old friend, Dr. Hughes Bennett. The University of Edinburgh had just passed through what was probably the most brilliant period in its history. The race of the last of the Monros was well-nigh run; the great discoverer of the difference between the motor and sensory nerves, Sir Charles Bell, was still living; the aristocracy of Scotland had only just ceased to crowd the class-rooms and witness the brilliant and successful

experiments of Dr. Hope. The day of Cullen, of Home, and Duncan, and Macintosh was over; but there still remained in the University the most loved and revered of teachers, the benevolent Dr. Alison, Sir Robert Christison, Sir George Ballingall, and Mr. Syme. Dr. Abercrombie was still practising his profession in the city.

At this period the great discoveries of Schleiden and Schwann seemed likely to upset all that had previously constituted physiology. The idea that all tissues were either composed of cells or had been formed of cells—that nucleated cells elaborated all the secretions and formed the excretions—that their energy lay at the very root of the formation, the reproduction, and the function of every tissue and organ, was a revelation of such astounding simplicity as might well upset men's minds and prevent their seeing beyond.

No one, who did not live through that time, will, I believe, ever realise the eagerness and anxiety with which every new statement of the action of cells was received and added to the previous knowledge of their amazing power, or, on the other hand, be able to judge of the feeling, half akin to disappointment, which was experienced as each succeeding attack was made on this charming theory, showing it to be really human, very human indeed.

Cells were then understood to constitute the mass of all organs (the liver, spleen, kidney, and brain), and to be the main agents in the discharge of their functions—to exist and grow upon the definite membranous walls of the glandular vesicles and ducts—to be fed by blood brought to the attached surface of membranes, which seemed almost everywhere to form an absolute separation of the cellular part (the potential gland) from the non-essential blood- and lymph-vessels, the nerves, and framework of the organ. It seemed almost a pity that these little microscopic deities should be hampered by the necessities of their own existence, that they should need such base things as blood-vessels, nerves, and packing materials. Now how strangely are matters changed! What if it should turn out that these apparently independent little beings are not independent at all—that they are only the dilated ending of nerves? To this subject I shall refer again by-and-by.

This great cell-theory has now given place to what I think is certain knowledge, that living matter may move, perform all the functions of assimilation and nutrition, and reproduce its like without having any of the essential characters of a cell. A living mass of protoplasm may change its shape, alter its position, feed and nourish itself, and form other matter having the same properties as it has, and yet be perfectly devoid of any structure recognisable by the highest powers of the microscope.

Mr. Lister showed that the contraction of pigment-cells in the skin changes the position of the pigment-granules, driving them alternately into the processes and the body of the cell. Kühne, Golubew, and Stricker observed changes of form in amœbæ, white blood-corpuscles, and embryonal capillaries, respectively, after the application of electrical stimuli; and Brücke observed contraction in the pigment-cells of the skin of the chameleon after excitation of the sensory nerves; while Kühne noticed contraction in corneal cells after excitation of the corneal nerves.

Thus obvious movements in fixed cells or masses of protoplasm are proved to result from the operation of various stimuli, including nervous stimuli.

* Being the Opening Address in the Section of Biology delivered at the Annual Meeting of the British Association, 1874.

But all cells are not fixed. The blood-cells, fixed as cells of organs at an early period, become free in the blood-fluid and are moved along by the forces which circulate it, until a second time they enter into the composition of the solid tissues by penetrating the walls of the blood-vessels and moving along the substance of the tissues, for purposes which are not yet wholly explicable.

What naturalist will not at once suggest how frequently this process of alternate fixation and movement of animal forms occurs low down in the scale? and yet how startling is it in man! how impossible to reconcile with our former ideas of the existence of membranous coverings, of cells, surfaces, and of gland-ducts! But, with or without explanation, the facts must be recognised; the floating blood-cells are really the very cells which once formed the substance of the lymphatic glands, the spleen, and other organs; and they do, in fact, move through the walls of the blood-passages, and wander about freely in what we call solid tissues.

Our knowledge of this circulating fluid has marvellously increased. The duration of the life of any of its particles is but short; they die, and their places are occupied by others, as was the case with our forefathers, and will be the case with ourselves. It is now a matter of observation, which commenced with Hirt of Zittau, that after every meal an amazing number of white corpuscles are added to the blood: breakfast doubles their proportion to the coloured corpuscles in half an hour; supper increases their proportion three times; and dinner makes it four times as great. They come from such solid glands as the spleen. In the blood going to the spleen, their proportion is one to two thousand two hundred and sixty; in that returning from the spleen, it is one to sixty. Every organ and every tissue changes this fluid; and, to my mind, perhaps the most stupendous miracle of organisation is the steady maintenance of but slightly variable characters in the living and moving blood which is every moment undergoing changes of different kinds as it circulates through each tissue and organ in the body.

Yet with all this change there is an invariable transmission of the parental characters by continual descent from particle to particle as each takes the place of a former one; and thus each organ continues to discharge the same function from year to year. Animals of the same kind retain the old number of organs, the same shape of body, and similar modes of life. There is no sign of commencing life, no coining of new vital power, no production of living out of dead matter. The original life extends its limits; it operates in a more extended sphere; but it is the same life, it operates in the same way, it never fails to be recognisable in the individual by the same characters as it had when it was first known. Whatever other functions it discharges, it acts continually in obedience to the first great law; it increases and multiplies, and replenishes the earth.

Let us now for a few moments compare our former views of the structure of animal membranes with the present ones. The skin (covering the outer surface of the body), the mucous membranes, the serous linings of the great internal cavities and of the blood- and lymph-vessels, and the lining membranes of joints, were all alike viewed as if formed of a definite membrane covered on one side by cells, and on the other supplied by blood- and lymph-vessels and by nerves—the membrane covering in the latter parts

and effecting an absolute separation of the cells from the vessels and nerves, which were universally believed never to penetrate into the cellular layer. The cells were regarded as the parts actively engaged in the performance of the functions, the vessels and nerves aiding thereto supplying materials to be acted on by the cells, and the nerves regulating the amount of action at particular times for special purposes. The diseased conditions, like the functions, were kept perfectly distinct; and we had one set of diseases of the epithelial or cellular parts, and another and a different set of diseases of the membranes and of the parts below.

I think the first occasion on which the public faith in these views was seriously shaken was when the late distinguished Professor of Medicine in St. Andrew's, Dr. John Reid, died of what was called an epithelial cancer of the tongue. Microscopical examinations showed that the disease existed in the cellular covering of the tongue. A sufficient cause for it was supposed to exist in the irritation caused by sharp points of the teeth, to cover which a protecting silver plate was constructed. The diseased parts were removed with the greatest skill and care by Sir William Fergusson, and subsequently by the late Dr. James Duncan, assisted by Mr. Goodsir and Mr. Spence, now Professor of Surgery in the University of Edinburgh. Every conceivable care was taken by these attached friends of the poor sufferer to remove every trace of the disease; but it progressed steadily, and destroyed his valuable life.

At this period no one could understand the extension of an epithelial disease through a basement-membrane; and therefore the affection of the adjacent lymphatic glands was explained by supposing the diseased action to have been propagated from cell to cell along the epithelial surface of the lymphatic vessels.

Not long afterwards the sternly truthful and accurate Sir James Paget declared, in terms of terrible significance, to the sufferers from this disease, that epithelial cancer takes a little longer time than ordinary cancer to do its fatal work.

And it soon became thoroughly well known that the glands of the skin, the hair-bulbs, and the teeth, are produced by a local development of the deep cells of the cuticle, extending far below the line of the basement-membrane or cutis, and through the position which it was supposed to occupy, as though no membrane were there to hinder them.

Thus the basement-membrane, which was supposed so arbitrarily to separate the cells on one surface of membranes from the vessels and nerves on the other, gives way at once before an increased development of the cells, whether in the formation of new organs or in the extension of disease. And the membranous walls of capillary blood-vessels allow the corpuscles of the blood to pass through them, much in the same way as solid particles enter into and traverse the substance of the protoplasm of an amœba or other mass of sarcode.

Whilst physiologists were engaged in these observations, the late Master of the Mint, Mr. Graham, was conducting a series of experiments of the most remarkable kind, and of the utmost importance to physiology as well as to chemistry and physics. He found it necessary to separate the two sets of substances as crystalloids and colloids—the colloids being penetrable by the crystalloids as readily as water, the crystalloids (such as hydrochloric acid and common salt) passing through organic membranes

with great freedom, whilst many of the colloids, such as albumen and gum, will not penetrate them at all. This discovery has enabled the chemist to separate crystalloids from colloids by dialysis, even when they occur in the most minute proportions—for instance, to separate 80 or 90 per cent. of a ten-thousandth part of arsenious acid in twenty-four hours from porter, milk, or infusions of viscera, substances notoriously difficult to analyse. And it has enabled physiologists to explain how animal membranes are traversed by various substances which could not pass through them without being changed from the colloidal into the crystalloidal form. Thus the colloidal starch and albumen of our food scarcely admit of absorption, until in the process of digestion the starch becomes sugar, and the albumen albuminose, crystalloidal bodies which pass through animal membranes with great facility. And again, this crystalloidal albuminose, after having passed into the tissues through the membranous walls of the vessels, may become a second time a colloid, and be deposited and fixed as tissue-substance, ready in its turn to be permeated by crystalloids either for temporary or more durable purposes in the economy.

The effect of this great discovery of Mr. Graham's shows how impossible is the advance of physiology, without a corresponding advance in our knowledge of chemistry and physics.

If basement-membranes, the walls of blood-vessels and of cells are made up of colloidal matter, we can easily understand how they are penetrated by crystalloids; and in like manner it is perfectly possible that they may be traversed by other substances in solid forms—as, for instance, the walls of blood-vessels by the corpuscles of the blood. No wonder that there is a continual deposition and removal of the constituents of the tissues, if so slight a change as that from the crystalloidal to the colloidal form, and the reverse, makes such perfectly marvellous differences in the relations of these substances to each other.

We must look upon the tissues of an animal body as we do upon the substance of an amoeba, and re-collect how penetrable the surfaces and tissues of animals are; then we shall cease to be startled when we see these parts become the seat of entirely new deposits, or find them traversed by migrating blood-corpuscles as freely as a colloid is penetrated by a crystalloid.

It is impossible to foresee what may be the result to physiology of this great advance in our knowledge of the varying relations of substances to each other according as they present themselves at different times in the opposite physical conditions which were described by Mr. Graham as crystalloidal and colloidal. But it is plain that we cannot continue to look upon animal membranes as forming such decided barriers against the penetration of one tissue by another, or by foreign matters, as was once supposed.

Let me now direct your attention to the present aspect of the question, how far basement-membranes limit the distribution of vessels and nerves, and separate them from the cells of glands and membranes.

Mr. Bowman, in his admirable researches into the anatomy of the organs of sense, discovered that the filaments of the nerves of smell have a remarkable structure—that they are nucleated, finely granular, contain no white substance of Schwann, and resemble the gelatinous nerve-fibres. The epithelial surface, too, of the olfactory region Mr. Bowman described as differ-

ing greatly from that of the adjacent parts of the nasal mucous membrane, and as being of a dark sepia tint. Subsequent examinations by Hoyer, Max Schultze, and Lockhart Clarke, confirmed these statements; and those of Schultze demonstrated that the cells are of two kinds, one elongated and filled with yellowish granular protoplasm, exposed at the outer end of each cell and containing a clear oval nucleus in clear protoplasm in its deeper part, which is first attenuated and then expanded into a broad flattened process, apparently connected with the connective tissue; the other cell, the proper olfactory cell, a thin, fibrous, rod-like body, is moniliform or varicose, connected below with the outrunners of a nerve-cell, and in birds and amphibia furnished with one or more hair-like processes, which at the free end come directly into contact with odorous particles. Exner in 1872 denied the distinctness of these two forms of cells, stating that there are all intermediate forms, and that both forms are connected with a deep network continuous with filaments of the olfactory nerve. But Dr. Newell Martin, in a paper published in the November number of the *Journal of Anatomy and Physiology*, maintains that the two kinds of cell are distinct, though their characters approximate very closely in the instance of the frog. He inclines to the belief that, as both forms of cell are so distinct from ordinary epithelium, they are all olfactory cells.

The only conclusion which can be drawn from these observations is, that in this situation the olfactory nerves divide into myriads of small finger-like processes, which, exposed on the free surface of the membrane, are actually engaged in feeling at the odorous particles to inform us of their characters.

This single instance, so thoroughly proved, would be sufficient to destroy our former ideas, that nerves are spread out under basement membranes and never penetrate an epithelial layer.

But this is not the only case of the kind. The general relation of the gustatory nerves to the epithelial cells of the tongue has been described by Axel Key as similar in the fungiform papillæ of the frog, and by Schwalbe and Lovén in the gustatory cells of the circumvallate and of some of the fungiform papillæ in men and animals. On the protected sides of the circumvallate papillæ a peculiarity in the shape and arrangement of the epithelial cells produces a series of taste-cones, the central cells of which are furnished with hair-like prolongations similar to those of the olfactory cells.

In the otolith-sacs and the ampullæ of the semi-circular canals of the ear, the nerve-filaments, having lost their white substance, become connected with peculiar auditory cells and end in hair-like processes between the epithelial cells. In the cochlea, too, notwithstanding the complication of the examination produced by the rods of Corti, there is reason to believe that the cells supporting hairs which project beyond the epithelial surface are connected with the primitive nerve-fibrils of the plexus below.

Of the recorded instances in which nerves pass through basement-membranes to get into direct contact or continuity with the superjacent epithelial cells, none is so striking as that of the salivary and other glands, if there be the least ground for the remarkably detailed observations and suggestions of Pflüger. They are of so much importance and interest in connection with the whole process of secretion, that I offer no excuse for directing your attention to them, even though it may be proved that

the act of secretion is not attended with such marvellous and extensive changes of structure as Pflüger supposes. Up to a certain point, his observations may be easily and abundantly confirmed; beyond that, there is much greater difficulty; but this meeting offers one of the most favourable opportunities for extending our knowledge, by bringing different observers into easy communication with each other, and enabling each to help the rest by stating the means by which he had overcome what seemed at first to be insuperable difficulties in the progress of an investigation.

Pflüger calls attention to the very variable characters of the alveoli, the secreting cells, and the excretory ducts of the salivary glands. These parts, which were believed to have very determinate sizes and characters, he declares to differ very greatly in different parts of the same gland. The alveoli, occupied by what we understand as secreting or glandular epithelial cells, and the excretory ducts lined by columnar epithelium, he thinks he can prove to be but different stages of development of the same structures, produced on the ends of the myriad nervous filaments supplied to these glands.

On this view, glandular epithelial cells must be regarded as special organs of termination of nerve-fibrils, like the auditory cells, touch-corpuscles, olfactory cells, muscular fibre-cells, and the like; the relation between such structures and the nerves becoming so close that it may be difficult, perhaps impossible, to define their respective limits. Pflüger has figured the nuclei of the cells of the alveoli of the salivary glands, the salivary cells, connected with a delicate fibre, which often pierces the surface of the cell in contact with the *membrana propria*, and gives the cell the appearance of being stalked. This appearance has also been seen by Schlüter, Otto Weber, Gianuzzi, Boll, and Kölliker; and indeed the appearance which Pflüger has figured may be seen by any one who will take the trouble to examine the salivary glands of the common cockroach (*Blatta orientalis*). This process was shown to me by my friend and pupil, Mr. Charles Workman; and I have several preparations which show a similar process to that which Pflüger has observed and figured; but that it is as clearly connected with the nucleus of the cell as he describes it, I am not prepared to affirm. Pflüger says it is hollow, and often discharges a large quantity of tenacious material which clearly proceeds from the nucleus.

In the interior of the gland there are ducts lined with a thick but single layer of columnar epithelium, the cells of which are clear and nucleated near their free end, but furnished with a large number of extremely fine varicose hairs at the end connected with the *membrana propria*. This epithelium becomes thicker as the ducts proceed towards their connection with the alveoli; and as transparent drops can be seen transuding from the ends of the cells when saliva has been made to flow by irritation of the gland, Pflüger concludes that they are important secretory organs. Such ducts frequently form loops, or bend suddenly, or possess diverticula. The epithelium of the ducts, which carry the secretion out of the gland, is of a different and apparently less important kind.

Pflüger directs special attention to the great number of nerves connected with the alveoli. He has identified them in fresh specimens by their investment here and there by an ordinary double-contoured medulla, by their being blackened by perosmic acid,

by their varicosities, and by tracing them to large and more easily recognisable nerves. He finds them branching in great numbers amongst the cells of the alveoli, and traces their fibrils to the nuclei of the cells, sometimes after they have been connected with multipolar ganglion-cells. Or nerves covered by medulla and sheath, and containing numerous varicose axis-cylinders, branch, enlarge, and become covered with protoplasm set with nuclei, forming what Pflüger calls a protoplasmic foot, and supposes to be a structure intermediate in character between nervous and glandular tissue. And on the surface of the ducts lined by columnar epithelium a nerve divides into a pencil-like tuft of varicose fibrils, each of which Pflüger says is directly continuous with one of the processes of a columnar epithelial cell. I have frequently seen the pencil-like tuft of varicose fibrils on the surface of the ducts lined by columnar epithelium; but it is not so easy to be sure that the fibrils are connected with the processes of the cells. However, the statement is made in the most positive way by Pflüger, who has made these glands the subjects of very special and lengthened investigation; and his drawings afford very strong corroborative testimony of the value of his statements. Moreover, in independent observations on the pancreas, he has also traced the nerves to endings in the secreting cells.

But Pflüger has gone greatly further than this. He has figured the hair-like processes at the attached end of the columnar cells in all stages of transition into salivary cells of new alveoli; and having previously found the nerves connected by varicose fibrils with protoplasmic masses set with nuclei, he concludes that it is possible that the salivary cells are developed on the ends of the nerves without interference of their own nuclei, and that, as a continual new formation of alveoli and salivary cells implies the atrophy and disintegration of corresponding older parts, the alveoli with pale offshoots of various forms which he has seen in moles are evidence of such atrophy.

With these numerous instances in which nerves are alleged to pass through membranes to be connected with the cells on their surfaces, as if these were their special modes of termination, we might well be content until there has been time for further investigation by independent observers. But there are yet other instances. Langerhans described, in 1868, a fine network of fibres in the skin, from the superficial part of which fine non-medullated fibres pass out of the cutis and end in the Malpighian layer of the epidermis. He saw in the epidermis also well-marked cells which gave off several processes towards the horny layer, and one long slender process which passed through the Malpighian layer into the cutis. He considers these cells to be nervous, and their peripheral processes to be the terminal parts of the nerves of the skin. C. J. Eberth agrees in the main with Langerhans, and recognises fine nerve-fibres passing from the nerves of the cutis into the deeper layer of cuticular cells, and also star- and spindle-shaped cells in the cuticle, which he suggests may be nervous structures, though he has not traced them in connection with nerve-fibres.

On the surface of young fishes and Amphibia, F. E. Schütze has described nerve-hairs arranged in the form of tufts or brushes, very much as in the case in the organ of hearing; in this instance the brush-like endings of the nerves are probably connected with touch.

Cohnheim has described the corneal nerves as forming a superficial plexus under the anterior elastic lamina; from this perforating branches pass perpendicularly through the lamina, and then under the epithelium, break up into brush-like or star-shaped finer branches, which form a plexus giving off fine nerves at tolerably regular intervals between the deep columnar cells and the more superficial spheroidal ones, and dividing at length into their finest branches, which end by somewhat swollen extremities in the most superficial epithelial layers. Thus the exquisite sensibility of the front of the eye, like that of the olfactory or gustatory mucous membranes, may be accounted for.

When I look upon the vast amount of research which has been applied to this department of biology for some years past, and think that the instrument which has afforded the great means for it was only perfected so as to be capable of use for such purposes about 1820, I cannot but congratulate the Section on the abundant fruits we are reaping.

And when, in addition, I contemplate the amount of certainty which physical science has imparted to physiology by furnishing the means of examining and accurately measuring the rates of transmission of nerve-currents, of obtaining tracings of the respiratory movements and of the arterial pulsations, of examining the retina in the living eye and the larynx of a living man almost as readily as if these parts were exposed in a dissection, I cannot but conclude that this nineteenth century has already been distinguished as a very notable one for biology, and especially for physiology.

Considering that so much time is required for making a single careful observation, it is very fortunate that so large an array of inquirers and so much talent are employed upon the subjects in which we are interested, and that once a year we have this admirable opportunity of listening to the results of inquiries instituted by the most eminent men in all parts of the world, and of hearing different views advocated with the greatest earnestness and yet with perfect good humour, and a rigorous determination to rest satisfied with nothing but the truth.

RABIES AND HYDROPHOBIA—THEIR CURABILITY.

Taking for his text the epigrammatic sentence:—‘There is no disease so slight but that it may cause death, and there is no disease so serious as to be incapable of cure,’ M. Decroix, in a pamphlet of forty pages, urges that it is an error to call hydrophobia incurable. He refers to seven cases of recovery, some from rabies in the dog, others from hydrophobia in man. Unfortunately, with one exception, the cases are ill-observed and loosely reported. The exception is that of a dog carefully inoculated for experimental purposes, which in due time developed characteristic symptoms, but, to the surprise of the experimenter, recovered. Now, we do not affirm that a rabid animal or a hydrophobic man never can recover or never has been cured, but we do say that the infinitesimal proportion of recoveries recorded justifies the disease being looked upon as incurable.

We cannot accept M. Decroix’s conclusions, that ‘rabies is not such a terrible disease as the public seems to think,’ or that ‘the hopeless theory of incurability is upset by well authenticated cases of

recovery.’ Recent experience in this country and in America points to directly opposite conclusions. M. Decroix would probably reply that the cases were not properly treated. He says that ‘the rational method of treatment should follow two indications—to remove the patient from all causes of excitement and to procure them all the material and moral comforts compatible with their condition;’ and he adds, ‘that by adopting this method we obtain a “natural rabies,” more amenable than the “artificial rabies,” due to heroic remedies, and that cases of recovery are greater than under the old system.’ Our experience does not enable us to speak of the results of heroic treatment. We fancy it is many years since medical men have adopted any plan of treatment save that indicated above, when such diseases as tetanus or hydrophobia were under notice. The treatment of hydrophobia has been essentially conservative and expectant, and yet we know no single cure. The treatment of rabies is seldom attempted; but many dogs have been allowed to remain quiet and undisturbed in cages, rooms, or loose boxes; death has invariably terminated the case. The attempted distinction between ‘a natural and an artificial rabies’ has nothing to support it. Dogs frequently pass through the disease without any excitement, in what is known as dumb rabies, but this form is equally fatal with the violent condition. Certainly negative treatment has been fairly tried, and has proved useless. Until we can point to something more than a fractional percentage of doubtful recoveries, we must be content to allow the disease the unsatisfactory epithet, incurable. In the *Union Médicale* for June 23, M. E. Michel reports on the memoirs presented to the Medico-Chirurgical Society of Bordeaux, and directs special attention to nine papers on rabies. The second case in these memoirs refers to the ‘heroic treatment’ of a hydrophobic woman by the injection into the veins of warm water. These injections—fifty grammes at a time, amounting collectively to 700 grammes—seemed to afford some relief, the pulse and breathing becoming more regular and less frequent, but ultimately the patient died. The case is not very instructive, but, so far as it goes, is in favour of M. Decroix’s conclusions. The rest of the papers in the *Union Médicale* offer no further facts worth special mention as adding to our knowledge of the pathology or treatment of rabies.

The distinguished American physiologist, Dr. Hammond, has recently suggested a treatment of hydrophobia of a decidedly heroic nature. He advises the use of a continued electric current, and the application of ice to the spine. Decroix’s treatment is certainly more rational than this. Even supposing Dr. Hammond’s idea, that hydrophobia is a nervous disease, be true, it is difficult to see the *rationale* of his treatment. But it is utterly ridiculous when we know that the disease is simply dependent upon a specific poison in the blood. Rarely, very rarely, does rabies arise suddenly as the result of shock; but when it does, the explanation is that the period of incubation has been suddenly shortened.

Although we differ from Decroix, and believe that rabies is incurable, we agree with him that no heroic or exciting measures should be adopted from hope that medicine may yet triumph over this fell disease. The offer by Mr. Reilly, of Manchester, of a prize of 500*l.* for the best treatment or cure of hydrophobia, may be the means of adding to our knowledge. Properly applied, it might at any rate settle the real value of some of the secret but much vaunted remedies. Ex-

periments are requisite, but they must be well authenticated and minutely reported, so that public confidence be not reposed in a fallacy. Meanwhile we must trust to prophylactic measures, and attempt to stamp out the disease amongst animals by whom solely it is communicated to man.

ANATOMY AND PHYSIOLOGY.

PREVOST ON THE ACTION OF MUSCARINE ON THE PANCREATIC AND OTHER SECRETIONS.—In a recent communication to the Société de Biologie, in Paris, M. Prevost gave a *résumé* of experiments made with the toxic principle of *Agaricus muscarius*. He had studied the action of muscarine, 1. on the heart, which it was found to stop in diastole by excitation of the intracardiac nerve-centres; 2. on the intestine and bladder, in which it provoked strong contractions; 3. on the pupil, which it contracts; and 4. on the secretions of saliva, tears, and intestinal mucus, which it strongly excites. His experiments confirmed the results arrived at by MM. Schmiedeberg and Koppe, adding some new details. Like these observers, he noticed the antagonistic action of atropine, which immediately stops the phenomena produced by muscarine.

In a further series of experiments, M. Prevost has studied the action of muscarine on the pancreatic, biliary, and urinary secretions (*Comptes Rendus*, Aug. 10).

1. *Action on the pancreatic and biliary secretions.* The experiments were made on dogs, in which he laid bare the opening of the pancreatic and biliary ducts into the intestine, by a longitudinal incision of the duodenum. This was his usual method; but sometimes he made a pancreatic fistula.

Whether the animal was in digestion or fast, the pancreatic secretion was notably increased after injection of some milligrammes of muscarine into a vein. The excessive secretion ceased after intravenous injection of one or two milligrammes of sulphate of atropine.

There was also a great increase of biliary secretion; from a feeble flow before the injection of muscarine, it became abundant. The excessive secretion ceased, and the normal state was restored, after atropine was injected. These experiments were frequently repeated on different animals, and with the same results.

2. *Action on the urinary secretion.*—M. Prevost observed the changes produced in flow of urine by the ureters, after intravenous injection of muscarine. The experiments were made on dogs, cats, and rabbits.

He found the following method the best. A longitudinal incision is made above the pubes, in the median line of the abdominal wall, to an extent sufficient to produce hernia of the bladder. This organ is slit longitudinally throughout its height, and the edges of the wound sutured, on each side, to the lips of the abdominal wound. This operation may be quickly done, without hernia of the intestine. The experimenter is then in a position to observe the flow of urine by the ureter.

This process has the advantage of not modifying the urinary secretion, which is often the result of introducing a tube into the ureter.

One then sees the urine flow alternately at intervals of several seconds by each ureter, in the form of

small ejaculations coinciding with termination of the vermicular contraction of the ureter, which can be easily seen propagated even to the bladder. The orifice of the ureter in the bladder appears to open actively at each passage of urine. The flow of urine by the two ureters is commonly alternate; but sometimes it becomes simultaneous. In the normal state there are, in the rabbit, seven to ten outflows by the ureters per minute.

M. Prevost made careful comparison of the phenomena before and after the injection of muscarine. In eight such experiments he found that the injection of muscarine into the veins diminished the urinary secretion, and almost stopped it completely when the dose was strong. In all these cases, on the other hand, the lacrymal, salivary, biliary, and mucous secretions were considerably increased. Thus the urinary secretion presents a striking contrast to the others. Curiously, the injection of a few milligrammes of atropine into the veins suffices to restore the urinary secretion to what it was before injection of muscarine.

In several experiments on the rabbit, the author found that the urine, which was clear at the beginning of the experiment, came out turbid from the ureter after injection of atropine, presenting a character which is frequent in the rabbit's normal state.

En résumé, muscarine produces an excessive secretion from the liver and the pancreas, and diminishes the urinary secretion even to suppressing it almost completely for some time. These phenomena disappear under the influence of atropine, which may thus, in the above respects also, be regarded as antagonistic to muscarine.

ALEX. B. MACDOWALL.

DUNCAN ON THE NERVOUS SYSTEM OF ACTINIA. A paper on this subject, respecting which there has been much discussion, appears in the *Monthly Microscopical Journal* for August, from the pen of Professor Martin Duncan. An account is given of the observations of Howard, Haime, Schneider, and Röttken. Professor Duncan worked chiefly upon the actinia mesembryanthemum, and remarks upon the various difficulties that accompany the inquiry—the irritability of the muscular tissue, the variety of cellular histological elements, and the slimy character of the whole mass. It is difficult also to make thin sections. On examining the chromatophores he finds an outer bacillary layer consisting of sausage- or bolster-like cells, arranged vertically and separated from each other by a delicate layer of protoplasm. Beneath this is a little granular protoplasm containing small cells; then comes the second layer, which is composed of large, transparent, colourless, and highly refractile cells. In addition to these structures are the cones of Röttken, or the nematocysts with imperfectly visible threads of Howard. Some of these are elongated simple cells, faintly tinted, with tough cell-wall and rather viscid contents; others have a faintly striated cell-wall, and others again have a well-developed thread developed in their interior. The tissue between them is granulo-cellular protoplasm, and this often presents a filiform and branched appearance. Besides all these, Röttken described fusiform cells and fine fibres, which he believed to be a rudimentary nervous system, and in this view Professor Duncan is disposed to agree. He points out the difficulties of regarding the chromatophores as organs of special sense, since they are sometimes present, sometimes absent, in nearly allied

genera; still he thinks they may be regarded as the first faint outlines of eyes. He finds certain plexiform fibres at the base of the actinia.

CRUM BROWN ON THE SENSE OF ROTATION.—In the last part of the *Journal of Anatomy and Physiology*, Dr. Crum Brown states he has for some time past been convinced that we possess a sense of rotation quite distinct from all our other senses. By this means we are, he thinks, able to determine—(1) The axis about which rotation of the head takes place; (2) the direction of the rotation; and (3) its rate. His experiments were conducted by placing a stool on the centre of a table capable of rotating smoothly about a vertical axis. Upon this the experimenter sat, his eyes being closed and bandaged. An assistant then turned the table as smoothly as possible through an angle, of the sense and extent of which the experimenter had not been informed. It was found that with moderate speed, and when not more than one or two complete turns had been made at once, the experimenter could form a tolerably accurate judgment of the angle through which he had been turned. By placing the head in various positions, it was possible to make the vertical axis coincide with any straight line in the head. Considerable differences of accuracy exist in different individuals. The explanation given by Professor Crum Brown is, that each canal has an ampulla at one end only; and there is thus a physical difference between rotation with the ampulla first and rotation with the ampulla last; and we can easily suppose the action to be such that only one of these rotations (say that with the ampulla first, in which case, of course, there is a flow from the ampulla into the canal), will affect the nerve-terminations at all. One canal can therefore, on this supposition, be affected by, and transmit the sensation of rotation about one axis in one direction only; and for complete perception of rotation in any direction about any axis, six semicircular canals are required in three pairs, each pair having its two canals parallel, or in the same plane, and with their ampullæ turned different ways; and this is just what is found in all animals he has examined that have the exterior canal of one ear very nearly in the same place as that of the other, while the superior canal of one ear is nearly parallel to the posterior canal of the other.

MATERIA MEDICA AND THERAPEUTICS.

BIGELOW ON AMERICAN EUPATORIA.—Dr. J. M. Bigelow, of Detroit (*Detroit Review of Medicine*, August, 1874) says that the genus *Eupatorium* in the United States comprises about thirty-two species. Three have been found exclusively in the eastern states, five in the southern states, and eleven in the far west. Four species have been found common in the three grand divisions of the states, and nine are common to the eastern and southern states. Of those known to possess medicinal or toxicological properties, one (*Eu. sessilifolium*) is exclusively eastern, one (*Eu. incarnatum*) is exclusively southern, four, (*Eu. perfoliatum*, *rotundifolium*, *teucrifolium*, and *aromaticum*) are common to the eastern and southern states, while two (*Eu. purpureum* and *ageratoides*) are common to the whole United States.

Eupatorium perfoliatum is officinal. Its history

and properties are well described in Wood & Bache's *United States Dispensatory*. *Eupatorium teucrifolium* and *sessilifolium* possess similar properties, but appear to be milder in their operation than *eupatorium perfoliatum*. The root of *eupatorium purpureum* has bitter, aromatic, and astringent properties, and enjoys the local reputation of being an excellent diuretic, besides its tonic properties.

Burnett, in his *Outlines of Botany*, mentions that *eupatorium rotundifolium* is useful in consumption. It grows in dry soil near the sea coast, from Rhode Island to Louisiana.

Eupatorium incarnatum and *aromaticum* contain an aromatic principle, similar to, if not identical with, coumarin, first obtained by Guibourt from *coumarouna odorata*, Aub. (*diplexis odorata*, Schub.), or Tonka bean. This principle, or one very similar, seems to pervade many plants, such as *melilotus officinalis* and *cerulea*, *asperula odorata*, *trifolium melilotus*, *anthoxanthum odoratum*, *liatris odoratissima*, and probably many others. It is, without doubt, this principle which gives fragrance to *eupatorium incarnatum*, *purpureum*, *aromaticum*, *odoratum*, etc. *Liatris* is a genus of composites, very closely allied to *eupatorium*, and all species with aromatic fragrance and tuberous roots have long been known to possess active diuretic properties.

Professor Lindley, as long ago as 1848, mentioned the fact that bloody urine from inward contusions had been cured by coumarin, obtained either from the flowers of *melilotus* or the Tonka bean. This principle, besides being diuretic, is decidedly antispasmodic, and has been used by Dr. Cooper, of Philadelphia, in cases of pertussis.

There is a large class of troublesome diseases connected with inflammation and irritability of the bladder, in which the coumarin obtained from these plants—reasoning from analogy and the little experience we have already had of this substance—might be expected to produce decidedly beneficial results. Dr. Cooper gave to children of five years five to eight grains in a dose, prepared in the form of a fluid extract, with the happiest soothing effect upon the nervous system, which renders it worthy of a more extended trial.

Professor Wood (*United States Dispensatory*, p. 389, 13th ed.), with regard to the peculiar bitter principle of the *eupatorium perfoliatum*, remarks that, when the peculiar principle is isolated and satisfactorily determined, the name *eupatorin* will be proper; but he does not seem to remember that there are other species of *eupatoria*, possessing other and very different properties, and that some of them may have a peculiar principle isolated and satisfactorily determined before the *perfoliatum*, and will then be entitled to priority in the name. Under these circumstances, it would be manifestly improper to apply it to the peculiar principle of *eupatorium perfoliatum*. Already we see *eupatorin* (*perfoliatum*) and *eupatorin* (*purpureum*) advertised; but as yet neither of them is entitled to the name, as both are only concentrations of the several proximate principles, and not one peculiar to either of them. Eclecticism has a great penchant for the application and appropriation of scientific names; and among a large number of absurdities, we see *cerasin* and *prunin* advertised, which, if true alkaloids, as their names scientifically indicate, would be one and the same thing.

Eupatorium ageratoides, known popularly in some regions as white snake-root, is used by the eclectic

physicians of Ohio as an antispasmodic, diuretic and diaphoretic. In cases of nervous disease it is given in drachm doses, in the form of infusion.

But the greatest interest centered in this plant results from its having been suspected of being the cause of trembles in cattle and milk-sickness, a severe and sometimes fatal disease of very local extension, making its appearance in the early settlement of isolated regions in the south-western portion of Ohio. It pervaded also portions of Indiana, Illinois, Kentucky, and Tennessee. Like the old-fashioned tertian ague, it has disappeared entirely upon the clearing up and cultivation of the land, which also destroyed the abundant prevalence of the weed. The late Wm. S. Sullivan, a distinguished botanist of Ohio, writing upon this subject, in 1840, says that 'this weed, hitherto considered harmless, has lately become the suspected cause of the fatal disease among cattle called commonly the "trembles." The disease prevails in many localities in the western States, and is always accompanied by another equally fatal to the human species, known by the name of "milk-sickness." It is generally believed they are both produced by the same cause originally, whatever that may be. A prevailing opinion is that some vegetable produces it. The poison-ivy (*Rhus toxicodendron*) has been strongly suspected by many, among them the late Dr. Drake, of Cincinnati. Mr. John Rowe, of Fayette County, Ohio, asserts that he has been successful in investigating this obscure subject. It was with the eupatorium ageratoides that experiments on some cattle were made by him, in the presence of highly respectable witnesses. The disease was produced and the cattle died with it. An account of the experiments, together with the certificates of the witnesses, was published in the *Ohio State Journal* of 1840. The details were not given as particularly as could be wished.'

Mr. Sullivan was careful to ascertain that this was the plant used in those experiments, and also examined and identified specimens procured by Mr. T. Roberts, who was well acquainted with all the circumstances. He was assured also by Dr. Drake, of Cincinnati, to whom Mr. Rowe sent specimens, that it was the eupatorium ageratoides. A difficult point to settle in this case is, that this plant and likewise the poison-ivy are very abundant in many places where these diseases are not, and never have been known. Mr. Sullivan was better acquainted with the geographical botany of the west than any other individual; and, never having seen or heard of any plant peculiar to such infected localities, he therefore concludes that the origin of the disease will not be traced to any particular plant, and especially the plant in question, as it is found growing in the east, west, north, and south.

Although not directly related to our present subject, it may not be uninteresting to refer to a South American plant of this genus—*eupatorium glutinosum*. Professor Lindley remarks that the famous vulnerary, matico, said to be derived from *artanthe elongata*, a piperaceous plant, is really, according to Mr. Hartweg, the eupatorium glutinosum. The following is the memorandum of Mr. Hartweg addressed to Professor Lindley on the subject: 'Matico is the vernacular name applied by the inhabitants of Quito to eupatorium glutinosum, or the chessalonga in the Quichua language. It forms a shrub three to five feet high, and is common in the higher parts of the Quitinian Andes, where its properties were

discovered some years back by a soldier called Mateo, better known under his nickname Matico (Little Matthew), who, when wounded in action, applied accidentally the leaves of some shrub to his wound, which had the immediate effect to stop the bleeding. This shrub happened to be the chessalonga, which has since been called, in honour of the discoverer, Matico. That it is the true Matico of the inhabitants of Quito and Riobamba I have not the slightest doubt; both the leaves and specimens have been gathered by myself, and, upon comparing the latter with Kunth's description, I found them to agree exactly with his eupatorium glutinosum.' Mr. Hartweg was a botanical explorer of considerable distinction, having collected many rare plants in California.

The *United States Dispensatory* only refers to the Peruvian Matico (*artanthe elongata*); but, if the two should appear in market, as is not unlikely, it is important that the discriminating prescriber should know how to distinguish them.

Besides the eupatoria above enumerated, we have eleven or twelve western species, of whose properties little or nothing is known. One among them, eupatorium Berlandieri, common all over Texas, New Mexico, and extending into eastern Mexico, Dr. Gray says, is aromatic, and nearly allied to eupatorium aromaticum; so that, if further known, some might be found worthy of a place in the materia medica.

CHADWICK ON TRANSFUSION. — In a paper on transfusion, read at the annual meeting of the Massachusetts Medical Society (June 3, 1874), Dr. Chadwick, after a few historical references, says: 'Writers on this subject have all failed to emphasise the great distinction between the classes of cases to which the operation is applicable, and have consequently lost sight of the different indications for its employment.' He then proposes to divide the cases in which transfusion may be practised into four groups, 'basing the distinction upon accepted views as to the constitution of the blood in health and disease.' 1. In cases of serious hæmorrhage from any cause, transfusion of blood is recommended. 2. In diseases, such as cholera, etc., where the watery elements are extracted from the blood, a saline solution is advised. 3. Where there is wasting from malassimilation of food, or from other causes, 'blood is the only fluid which will meet the wants of the system.' 4. In blood-poisoning of any kind, it is suggested either that an antidote should be introduced into the circulation, or that the poisoned blood be removed and replaced by healthy blood. Dr. Chadwick then discusses the physiology of transfusion, and describes the different modes of operating. He does not, however, profess to have had any practical experience in the matter, but has 'merely sought to make out a rough chart for the use of future investigators.' [The reporter ventures to think, seeing there are many far better within the reach of most medical men, that the chart was scarcely called for. The grouping of the different classes of cases looks a little methodical; but the information afforded is meagre, and certainly not new. A record of fresh cases, and of new experiments bearing on the physiology of the subject, would be more useful, and is much wanted.—*Rep.*]

HENRY M. MADGE, M.D.

TOMMASI ON THE USE OF CARBOLIC ACID IN CHEESY PNEUMONIA.—Professor Tommasi states

(*M. Morgagni*, January, 1874, quoted in *Gazzetta delle Cliniche*, May 19) that he has found carbolic acid very useful in cases of cheesy pneumonia which have gone on to the formation of pulmonary abscess. The medicine is administered in the form of solution (one part in forty of water, sweetened). In two years he has met with six cases, of which he relates two.

The first case was that of a boy, aged six, who had hectic, sweats, extreme emaciation, and moderate expectoration of sanguineous foetid pus. Cinchona, lactate of iron, cod-liver oil, and raw meat produced but little improvement. He now had half a gramme of the carbolic acid solution daily, the dose being increased to a gramme. At the end of a fortnight the fever ceased, the expectoration diminished and became inodorous, and in four months he was quite restored to health.

In the second case, there was abundant expectoration of inodorous pus. The usual restorative means failed; but, after the solution of carbolic acid had been given in daily doses of a gramme to a gramme and a half, the expectoration diminished, and the patient became free from hectic and regained his appetite, and his nutrition was improved. In two months the expectoration had ceased, and a respiratory murmur, though weak, could be heard in the portion of lung which had been hepatised.

A. HENRY, M.D.

OBSTETRICS AND GYNÆCOLOGY.

SIMS ON INTRA-UTERINE FIBROIDS.—In a paper read before the New York Medical Society at Albany, in February, 1874 (*New York Medical Journal*, April, 1874) Dr. Marion Sims treats principally of the improved methods of removal of these growths when practicable. From the danger attached to surgical interference, he considers any operative procedure unjustifiable, unless where the patient's life is imperilled through exhausting loss of blood. His experience has taught him that intra-uterine fibroids are, for the most part, capsulated, occasionally polycystic, but more frequently solid. When cystic, the cysts vary in size from a filbert to an orange or a cocoa-nut. The more solid they are the easier is their removal. He gives five cases of successful enucleation of simple fibroid. The tumours were of various sizes, from a hen's egg to nearly two pounds; the latter was the largest pure myoma he ever removed from the interior of the uterus. He gives one case of successful removal of a fibroid cystic myoma as large as a seven months fetus. This was the second of that dimension which he had enucleated.

In these cystic cases the danger of excessive hæmorrhage from large venous sinuses, and of septic poisoning, is very great. Three fatal cases are related, and one nearly so from the introduction of a sponge-tent for a few hours to dilate the cervix. The patient recovered, and the profuse hæmorrhage ever afterwards entirely ceased.

In two of these lethal cases there were *post mortem* examinations. In one, a cyst containing about six or eight ounces of decomposed sero-pus was found attached to the walls of the uterus, whence the tumour was removed. In the other an abscess had burst into the peritoneal cavity, causing peritonitis. In the third case the lady died of 'uræmia, pro-

voked or called into action by the effects of etherisation.' She had œdema of the legs. The urine was not tested before the operation.

When fibroids are left to nature they may occasionally break through their investing capsule, and be extruded into the vagina, but so gradually as to cause little or no suffering, their presence becoming first manifest from the offensive discharges produced by the decomposition of the tumour, coupled with symptoms of septic poisoning. Two typical cases are reported by Dr. Sims as occurring in his practice.

The following rules are laid down as a guide to successful removal of these growths: 1. To open the cervical canal freely; 2. To free the tumour from its investing capsule. Enucleation should not be attempted until the cervix appears sufficiently dilated to permit of its passage, and even then not until the rounded end of the tumour presents at its external os. Failure is inevitable if the operation is begun before the fibroid is on a level with the internal os, i.e. if of large size. When it is not larger than an egg, these rules are not applicable.

The process of enucleation is illustrated by a typical case. Before commencing the operation the cervix should be softened by several sponge-tents being inserted into the canal six or eight hours previously. The operation is performed as follows.

The patient is placed in the left lateral semi-prone position, and the vagina opened by Sims's speculum. The tumour is then seized at its most dependent part by the volsella, and pulled forwards; the capsule is slit up with scissors at the point of its attachment to the posterior and lateral portions of the cervix, care being taken not to dissect the capsule from the cervix. The cut should be square into it. The index finger is now passed through the opening between the capsule and the tumour, the former (capsule) being left attached to the walls of the uterus. The capsule is next divided all round in close proximity to the borders of the cervix. As much as can be, is enucleated by the finger; through the inability of the finger to reach to the fundus, it is supplemented by the enucleator, a steel rod twelve to fifteen inches long, looped at the end to prevent it from perforating the fundus when pushed up. The tumour is firmly held and pulled forward by the volsella, whilst the enucleator is rapidly pushed between the tumour and its capsule up to the fundus. It is then withdrawn and pushed up in another quarter. This is repeatedly done, and when the strong fibrous bands are torn through, it is carried circularly around the tumour so as to insure its complete separation. As the fibrous bands have in some cases proved too strong to be torn through with the above-mentioned instrument, it has been modified by substituting a blunt hook bent at right angles with the shaft, the latter (shaft) slightly curved laterally so as to sweep round the tumour. As yet, the instrument has not been tried; but the author is certain that it is far more powerful than the old one and perfectly safe. The adhesions being satisfactorily torn through, the evulsion of the tumour is now undertaken by pulling it forcibly forward with the volsella and passing a double hook (the tumour-hook) along the posterior surface as far into the cavity of the uterus as possible. With this hook the tumour is pulled down and slightly rolled on its vertical axis, whilst the enucleator is used to separate any unbroken bands of attachment. As the mass yields to the gradual traction, another hook is passed

up higher, and so on, until with the combined use of enucleator and hook the body is brought away. Very frequently the os will not allow its free passage; when the cervix should be slit up with the scissors to the insertion of the vagina in four different directions. These deep incisions in the cervix heal without leaving a trace.

The tumour-hook is represented on the paper by a woodcut. It has a hard India-rubber shield, which slides along the shaft, and is pushed up to the hook when its removal is required for the purpose of changing its position.

On the removal of the growth, the uterus immediately contracts. All loose shreds of membrane are cut away with the scissors. The hæmorrhage is generally slight, but sometimes very severe. In order to guard against any danger of this sort, a plug of iron-cotton is passed into the cavity of the uterus up to the fundus, and kept in position by a vaginal tampon. The whole should be removed within thirty-six hours after the operation, and in less time if there be any symptoms of septic poisoning. The iron-cotton, as it is called, is prepared as follows. It should be of the finest and purest description of cotton thoroughly wetted in water, squeezed out, then saturated with a mixture of liquor ferri subsulphatis and water (one part to two), and pressed out into layers one-eighth of an inch thick, about the size of the hand, until they are nearly dry. They are now placed into a wide-mouthed bottle and securely corked, with a small amount of the iron mixture in the bottom, to secure a sufficient dampness. When used, these layers are subdivided into thinner layers, and pushed up into the uterus wrapped on a smoothly polished and well-greased piece of whalebone tapering to the point, which is slightly curved. The tampons are made cone-shaped, varying from the size of the thumb upwards. Should the first not be sufficiently large, a smaller one can be introduced by its side. They are kept in position by wads of iron-cotton placed over the os, with a plain cotton tampon, wet with water. This vaginal tampon should be removed in ten or twelve hours; the uterine at the latest in thirty-six hours, generally in twenty-four. The uterine tampons are removed by an instrument similar to the old wad-extractor, in the days of muzzle-loaders. On account of the firm adhesion of the tampon next the cervix, its removal is attended with greater difficulties. As soon as they are removed, the uterus should be thoroughly syringed out with carbolised warm water, repeated every four hours for the first six days and then every six hours.

Respecting the operation of gastrotomy for the removal of these growths, Dr. Sims remarks that, since the wonderful success that has attended M. Péan in seven out of nine cases, it will not be long before this operation is recognised by the profession as a justifiable one, and placed on a level with the major operation of ovariectomy.

BLACHEZ ON PUERPERAL TETANUS.—M. Blachez reports (*Gazette Hebdomadaire de Médecine et de Chirurgie*) a case of true tetanus, not one of those forms of muscular contractions occurring in the newly confined or nursing mothers, which was described by M. Delpuch (1846) under the name of idiopathic muscular spasms, or which Trousseau called *tétanie*, or which Dance long previously (1831) named intermittent tetanus (*tétanos intermittent*). The

patient was a woman forty-three years old, mother of ten children. During the last year, she had been subject to hysterics. She was confined of a puny eight months' child twelve days before her admission into the hospital. She got up, as was usual with her, on the fourth day. On the ninth day after her confinement, she felt difficulty in swallowing, and stiffness of the jaws. The dysphagia, trismus, and opisthotonos gradually increased in severity, until death took place on the fifth day after her admission into the hospital, and the thirteenth day after delivery. On admission, the temperature and urine were normal, the lochia were natural, and the breasts contained but little milk. The temperature gradually rose to 44.2° Cent. (111.5° Fahr.), and the pulse to 136. The temperature was not taken at the time of death. The treatment consisted of chloral, cupping, and the application of chloroform in spray along the spinal column. The necropsy, apart from congestion of the two lungs, especially the right, and a marked injection of the vessels at the base of the brain, exhibited no lesion. Careful microscopic examination showed nothing.

Although there is some analogy between the two affections, hysteric convulsions (*tétanie*) and tetanic convulsions (*tétanos*) and a resemblance as if of the same morbid species, still there is a sufficiently marked difference in their etiology, progress, and prognosis. 'Tétanie' is almost invariably a benign disease, and very rarely mortal; not so 'tétanos'; the latter has never been observed except in close connection with parturition, whereas the former has been observed during gestation or after many months of suckling. Trousseau states that young women are peculiarly liable to *tétanie*; not to tetanus (*tétanos*). Hysteric convulsion (*tétanie*) has a partiality for the extremities; the attacks are separated by a period of calm and health, the muscles of the jaw and chest are seldom invaded, and the temperature is normal. Tetanus generally occurs after some accident during labour, and is developed under the same unfavourable agencies that lead to the ordinary puerperal affections. The uterine wound plays a very important part in this disease, not so in the other. Simpson's hypothesis that hysteric convulsions was the result of some poison developed in the blood, is negated by the fact that they generally occur under the most favourable hygienic conditions. Hæmorrhage, obstetrical operations, moral impressions, and above all, chills, play a very important part in the production of tetanus, but the precise influence of such has never yet been made out. They are the chief agents in the etiology of all puerperal affections, not in tetanus in particular. In this patient there was an exalted nervous condition, as was shown by the hysterical attacks. Puerperal tetanus is as obscure as surgical. Deduct the puerperal condition, and they are the same; simple traumatic tetanus, consequent on injury.

W. C. GRIGG, M.D.

KEMPER ON INVERSION OF UTERUS; PROMPT REPLACEMENT.—Dr. G. W. H. Kemper reports (*Indiana Journal of Medicine*, March, 1874) an example of this in a woman aged thirty-three, in her sixth labour. Fifteen minutes after the birth of the child, a violent pain came on which expelled the placenta beyond the vulva, and completely inverted the uterus. His first suspicion of an inversion was caused by the uterus escaping his grasp above the pubes, and disappearing into the pelvis.

'There was no unusual amount of hæmorrhage,

and her pulse was good. There was not the least tendency to shock, and the woman was not aware that anything unusual had occurred, until I began reduction. Without waiting for chloroform or assistant, I hastily separated the placenta, which was adherent to the fundus, before attempting to replace the uterus. Pushing my right hand through the vulva into the vagina, while steadying the tissues above the pubes with my left, I indented the fundus with the tips of my fingers, and maintained a constant steady pressure in the direction of the axis of the pelvis. In about five minutes my efforts were rewarded with success. I kept my hand in the uterus for a few moments and satisfied myself that every portion had been fully restored, and that the outlines of the organ were distinctly perceptible through the abdominal walls.'

Dr. Kemper states that he had made but slight traction on the cord, not sufficient to cause the inversion.

PSYCHOLOGY.

VOISIN ON THE CURATIVE TREATMENT OF INSANITY BY CHLORHYDRATE OF MORPHIA.—Dr. Voisin, of the Salpêtrière Hospital (*Bulletin Général de Thérapeutique*, March, 1874) arrives at the following conclusions.

If the malady be recent and not complicated by successions of delusions, the remedy keeps it from progressing, and stops the development of secondary or tertiary stages. Moreover, it calms the general or partial agitation in a time varying from two to three hours after a sufficient quantity has been injected. This dose is very variable, and is only arrived at by experience. The manner in which the delirium disappears is interesting. The delusions, hallucinations, etc., seem to separate off from one another and no longer to form part of the same whole; they disappear one after another, and the patient replies to questions and recognises that he has been ill, his memory returns, and he recounts a series of facts relating to his entry to the hospital, he writes to his family and allows himself to be treated medically without offering any resistance. It seems as if the symptoms of insanity disappear inversely in the order of their occurrence. Thus the patients who have begun by hallucinations followed up by delusions, in their recovery lose the latter before the former, and though the hallucinations may remain for some days they do not believe in them. The indications for the remedy are: melancholia, with or without hallucinations; ecstasy; suicidal ideas religious delusions; maniacal excitement; the various forms of neuralgia which are so common amongst the insane, and especially in the women, which often determine the especial character of the delusions, giving, *e.g.*, the notion that they are being electrified. The peculiar form of *folie circulaire*, which is generally thought to be incurable, has been very successfully treated by it.

The contra-indications for its use are: inflammatory symptoms, epileptic insanity, and general paralysis. In that form resulting from atheroma of the arteries, it may cause mischief from congestion, leading thence to hæmorrhage.

Of the twenty-five cases quoted which were cured, six were affected with general mania with hallucinations and incoherence. The strongest dose employed in these six cases was twenty-one centigrammes daily,

and the smallest was thirty-one milligrammes daily, the average duration of the treatment being four months. The other successful cases were of melancholic form, with more or less suicidal and homicidal complication.

Of the five unsuccessful cases, four had delusions of wealth and power, and one had certain febrile complications, a condition which has been shown by later experience to be totally opposed to the proper use of the remedy.

The subject will be continued in another number.

WILLE ON AID-SOCIETIES FOR THE INSANE.—Dr. Wille (*Irrenfreund*, no. 4, 1874) writes in favour of the formation of associations whose aim is the protection and help of the insane, because this class of persons is little understood in general, and therefore is at a great disadvantage. Hence one function of the association is to diffuse true and liberal ideas on insanity among the public. Another is to see that proper cases are taken to the asylum at the right time, by affording help to a poor man's family when he is taken ill, so that he can be at once removed and not compelled to work. At other times the help need not be material, but consists in protecting the property and interests of those already under restraint from people who would squander the one and spoil the other. When a patient leaves the asylum cured, it is generally to find himself worse off than before; he is often exposed to the cruel remarks and taunts of neighbours who decline to place confidence in him, and so his means for supporting the family are gone. At such a time the association supplies either food, money, clothes, or working tools, under conditions properly secured. Such institutions have long been founded in France—*sociétés de patronage*—and they have spread over all the departments, receiving support from all sorts of clerical and lay bodies, and increasing their funds by collections, lotteries, etc. Belgium possesses clubs of the same kind. Other countries have not done much, though exceptions must be made in favour of Colney Hatch, and the Bavarian Asylum at Illenau.

The labours of Dr. Zinn, at St. Gall, in Switzerland, and of Dr. Hund in Münsterlungen, canton Thurgau, in this direction, should be recognised.

In 1860 some philanthropic men of the canton Lucerne founded an asylum, and collected a fund of 8,000*l.* towards the object in question.

The paper concludes by giving a scheme for the management, viz., by a committee sufficiently large and composed of men with practical experience and large sympathies.

T. C. SHAW, M.D.

OPHTHALMOLOGY AND OTOLOGY.

BULL ON RETINAL HÆMORRHAGE AND ITS CONNECTION WITH CEREBRAL, CARDIAC, AND RENAL LESIONS.—The *American Journal of the Medical Sciences*, July 1874, contains an important article by Dr. Charles S. Bull, on this subject. The general history and the causation of retinal hæmorrhage are first discussed; and then the connection of special forms of hæmorrhage with the diseases of the brain, of the heart, and of the kidney is traced as far as our present knowledge of the subject will allow.

Retinal hæmorrhages may have a twofold origin ; that is to say, their exciting cause may be either intrinsic or within the eye, as in neuro-retinitis, retinitis or glaucoma, and extrinsic, when it is due to cardiac or to chronic renal disease. Dr. Bull agrees with most writers in speaking of three forms of hæmorrhage ; namely, the small round spots, circumscribed and many in number, the longitudinal streaks or brush-like bands when the blood is within the nerve-fibre layer, and the large and irregular patches which usually occur in the neighbourhood of the large veins. In some cases in which the extravasation is extensive the vitreous body is involved, but as a rule the tendency of the blood is to spread towards the choroid.

Retinal apoplexy from whatever cause has a marked tendency to recur, and, as an independent lesion, rarely occurs except in advanced life ; it is almost always associated with other structural lesions. It occurs with disease of the heart, and especially when this is associated with general atheromatous degenerations ; and in all cases of retinitis the walls of the vessels necessarily soon become involved.

As regards the subjective symptoms, there may or may not be premonitory warnings, but it is a characteristic of such lesions that they occur suddenly. Whether constitutional syphilis predisposes to retinal apoplexy, is uncertain. It is generally said of syphilitic retinitis that it is but rarely marked by hæmorrhages, but in a report by Mandelstamm of nine cases of this form of retinitis, which occurred at Wiesbaden in 1863—1866, it appears that four of them were accompanied by hæmorrhage. It appears to occur more frequently in men than in women, and generally after fifty years of age ; in fact, in the same report above mentioned, of twenty-six cases of retinal apoplexy, twenty-two occurred in patients from fifty to eighty years of age, and twenty-four of the twenty-six cases were in men.

The most important point in connection with retinal hæmorrhage is whether or not it may be regarded as a premonitory sign of cerebral apoplexy. A sufficient number of cases has not as yet been tabulated, though there is already a good deal of evidence to support the idea. Dr. Reynolds considers that clots in the retina are to be regarded as warning symptoms of a cerebral lesion ; Dr. Tanner speaks of them as being so ; and Dr. Hammond says he has known retinal hæmorrhage to precede by more than a year the occurrence of a more serious lesion.

Dr. Colman has reported a series of cases in the *Berliner Klinische Wochenschrift* (February, 1870), some of which were followed by cerebral apoplexy ; and Dr. Bull has observed four cases in which he was able to verify the occurrence of cerebral apoplexy subsequently to the intraocular lesion. These he records at some length in his present paper. Lastly, Dr. Berthold, in the *Klinische Monatsblätter für Augenheilkunde*, for April, 1874, records the case of a woman, between thirty-five and forty years of age, who came to him with a hæmorrhage into the macula lutea, and who, while under examination, suddenly fell back and died, with all the appearances of cerebral apoplexy.

Dr. Bull enters at length into the explanation of the connection between retinal hæmorrhage and chronic Bright's disease, as given by Dr. George Johnson in the *Medical Times and Gazette* for July 2, 1870 ; and, while assuming the correctness of Dr. Johnson's views as regards the hypertrophy of the muscular coat of the small arteries, he suggests that the cases in which no hæmorrhages occur may

be explained by the increased power of the vessels being able to balance the increased action of the heart ; and that the hæmorrhage is caused by the want of this balance, when, in fact, the hypertrophied left ventricle is not accompanied with a proportionate hypertrophy of the smaller arteries. The limited number of observations on record agree in assigning the capillaries, or at least the small vessels, as the source and the seat of the hæmorrhage.

WARLONT ON A NEW METHOD OF OPERATION FOR ENTROPION AND TRICHIASIS OF THE UPPER EYELID.—The *Annales d'Oculistique* for May and June, 1874, contains an account of a new operation for the cure of these troublesome and distressing cases, and one which Dr. Warlomont has practised with great advantage. After passing in review the methods recommended by Anagnostakis, by Von Graefe, by Williams, and by Streatfeild, all of which are good in their way, but each and all leaving something to be desired, Dr. Warlomont describes and recommends his own plan of proceeding as presenting the following advantages.

1. The operation may be as extensive as the surgeon pleases.
2. A recurrence of the inversion is rendered impossible.
3. The skin of the eyelid is unhurt, and the subsequent scar is almost imperceptible.

The operation consists in detaching the margin of the eyelid, with the offending eyelashes, from the subjacent tissues, and fixing it by sutures to the upper border of the tarsal cartilage, previously laid bare by a careful dissection. It is carried out as follows.

The patient is placed under chloroform, and the upper eyelid is fixed and compressed by a modified form of ring-forceps, which will be subsequently described. An incision is then made through the skin only, parallel to and at a short distance from the ciliary margin ; the skin is then dissected from the orbicularis muscle as far upwards as the ring of the forceps, so that a semilunar flap is formed of integument alone. The margin of the eyelid is then transfixed from above by a narrow double-edged knife, which detaches the row of eyelashes, or so much of it as is required, in such a way as to split the margin of the eyelid into halves, except at the extremities of the section. The narrow flap of integument containing the eyelashes is then drawn upwards, and is fastened by three or more sutures to the upper margin of the tarsal cartilage, which has been exposed by the previous dissection of the skin. The margin of the eyelid, bared of its eyelashes, is left to granulate over, and the flap of integument falls naturally into position, and requires no sutures. The threads are removed at the end of three or four days, when the union is generally found complete.

The ring-forceps which Dr. Warlomont employs is a modified variety of those generally in use. There is, as he says, a well-known objection to the ordinary form of instrument, in that its grasp upon the eyelid is limited, especially in breadth, so that it very often fails to include the entire row of eyelashes upon which the surgeon may wish to operate, and thus the operation is rendered incomplete. With the forceps which Dr. Warlomont has devised, this disadvantage is overcome in an ingenious manner ; the upper blade or ring is made to expand laterally, by means of a screw, and may thus be adapted to any length of the eyelid that may be desired ; at the same

time, and by a similar arrangement, the under and solid blade can be made to expand like a fan. The instrument was originally described by Dr. Warlomont in the *Klinische Monatsblätter*, December, 1873, having been previously mentioned at the Heidelberg Congress. It is now fully described, with an illustration, in the May and June number of the *Annales*, and with some improvements.

The instrument has been called the 'fan-shaped eyelid forceps,' by Dr. Warlomont.

BOWATER J. VERNON.

PFLÜGER ON HERPES CORNEÆ.—Dr. Pflüger of Luzern relates a case of herpes corneæ, in Zehender's *Klinische Monatsblätter für Augenheilkunde* for April and May, depending upon excessive use of the eyes by artificial light. After trying the usual modes of treatment by atropine, rest, iodide of iron, quinine, arsenic, etc., without effecting any change, he applied a constant current, placing the anode on the closed lid, directly over the cornea, and the cathode on the neck. Under this treatment, applied daily for from five to ten minutes, only one new crop of three vesicles appeared, while formerly there had been a new daily crop of from eight to twelve.

W. LAIDLAW PURVES.

ELECTRO-THERAPEUTICS.

RODOLFI ON THE TREATMENT OF HYDROCELE BY ELECTRICITY.—In the *Gazzetta Medica Italiana-Lombardia* for March 15, 1873 (see LONDON MEDICAL RECORD, June 25, 1873), Dr. Rodolfi, of Brescia, described a method of treating hydrocele by electricity, in which he operated by applying to the inner surface of the sac a copper probe, connected with the negative pole of a battery. He now relates (*ibid.* August 8, 1874) several cases in which this operation has been practised.

Case 1. Luigi Mazzuno, aged forty-five, was admitted on January 19, 1873, with hydrocele of the left tunica vaginalis. The hydrocele had existed about a year, but within the last two months it had become as large as the head of a new-born child. On the 19th, 20th, and 21st he had doses of the 'preparatory powders,' which Dr. Rodolfi always gives before operations, consisting of bicarbonate of potash, flowers of sulphur, and nitrate of bismuth. On the 21st, 700 grammes (more than twenty-four ounces) of yellow serum were removed; and Dr. Rodolfi operated in the manner already described, carrying the probe in connection with the negative pole over the whole inner surface of the sac for about twelve minutes. During the operation, the patient complained of slight burning at the point of puncture, and of a slight shock at a moment when the current was accidentally interrupted. The next day there were enlargement of the left testicle and œdema of the scrotum; these symptoms, however, were not accompanied with pain, and disappeared in a few days. On February 19, a month after the operation, the patient was discharged cured, there being firm adhesion of the tunica vaginalis. In the following November, Dr. Matanza of Adria, the place of Mazzuno's residence, informed Dr. Rodolfi, in reply to a letter, that the man remained in perfect health, the hydrocele being radically cured.

Case 2. Giacomo Roli of Pralboino, aged ten,

was admitted to hospital on February 5, 1873, with hydrocele of the left tunica vaginalis. The following day fifty grammes of yellow serous fluid were removed, and electricity was applied from two Bunsen's piles, charged with solution of bichromate of potash. The operation, which lasted six minutes, was attended with some pain, while the probe was passing over the inner surface of the sac. On the 7th there was evident reaction; the testicle was enlarged, and the scrotum red. The enlargement continued on the next day; it then gradually diminished, and on the 15th he was discharged cured. On September 16, Dr. Barchi of Pralboino wrote to Dr. Rodolfi (in answer to his inquiry) that there was a partial reproduction of the hydrocele.

Case 3. Giovanni Enghelben, of Calcinato, aged fifty-three, was admitted into hospital on February 5, 1873, with hydrocele of the left tunica vaginalis. It had existed two years, and had gradually increased. On the 7th 400 grammes (about fourteen ounces) of fluid were drawn off, and the electric current was applied (from three Bunsen's piles) for ten minutes. Slight pain was occasionally felt. Next day, the testis was twice as large as the other, but there was no pain. Soon afterwards, sac again became filled; and, on March 8, the operation was repeated, two of Bunsen's piles and one of Grenet's being used. The patient left the hospital three days afterwards; the epididymis was somewhat enlarged, and the scrotum apparently in a normal state. On December 8, he was again admitted with a hydrocele as large as an ostrich's egg. Believing that the former failure had arisen from the current being too weak, Dr. Rodolfi operated on December 12, with five powerful Bunsen's piles, the application being continued during twelve minutes. Some days later, a collection of fluid again appeared. Drainage was now used, and by this means a radical cure was effected. The patient left the hospital on February 11, 1874.

Case 4. Faustino Ferrazzi, of St. Gervasio, aged fifty was admitted on March 5, 1873, suffering from pellagra. The next day, it was found that he had hydrocele of the left tunica vaginalis. On the 7th 500 grammes (between seventeen and eighteen ounces) of fluid were removed; and, in order to meet the objection of some who believed that the good result of the treatment was due to mechanical irritation alone, the end of a probe was simply passed over the inner surface of the sac for twelve minutes. Next day the testis was somewhat swollen and tender, and the sac soon afterwards became filled. On the 28th, after drawing off the fluid, Dr. Rodolfi applied electricity for ten minutes. On the fourth day after the operation, the hydrocele began to reappear, and on April 20, the operation was repeated. It was found that the previous operation had produced adhesion of one half of the sac. The apparatus now used consisted of three Bunsen's pairs and one Grenet's. On May 4 some swelling and deep fluctuation was detected near the inguinal ring. On making an exploratory puncture, pus escaped. A drainage-tube was introduced, and the patient was discharged cured on June 6. On December 23 Dr. Volpi, of San Gervasio, wrote to Dr. Rodolfi that the drainage-tube was removed on August 1, and that the hydrocele remained perfectly cured.

Case 5. Giacomo Inama, of Brescia, aged forty-nine, was admitted on March 5, 1873, with hydrocele on the right side. On the next day 260 grammes of fluid were drawn off, and the galvanic current (from two Bunsen's and one Grenet's pile) was applied for

twelve minutes. On the 8th the right scrotum was of the size of a lemon, painful only on pressure, and the skin was of a vivid red colour. On the 17th there was slight fever, and on the 21st the swelling began to diminish. On the 23rd, there was some sloughing of the tissues at the point of puncture, with detachment of part of the subscrotal cellular tissue, probably from imperfect isolation of the probe during the operation. The man again visited the hospital at the end of January, 1874. There had been no return of the hydrocele.

Case 6. Angelo Peroni, of Brescia, aged forty-three, was admitted on April 13, 1873, with hydrocele of the left tunica vaginalis. Two days afterwards 250 grammes of fluid were drawn off, and a galvanic current from four pairs was applied for ten minutes. Two hours after the operation the patient was attacked with severe pain in the left testicle, passing along the spermatic cord and to the loins. It was relieved by the local application of ice, and the internal administration of chloral. He left the hospital on April 24. The cure remained for about six months; but he was again admitted in October with a return of the hydrocele. The operation was repeated on the 20th; and in June of this year there was no sign of reproduction of the malady.

Case 7. Giacomo Boselli, of Mairano, aged sixty-six, a very emaciated subject, was admitted on June 18, 1873, with hydrocele of the left tunica vaginalis. After a few days of preparatory treatment, 250 grammes of fluid were drawn off on the 29th, and the current from three Bunsen's pairs was applied for twelve minutes. The operation produced only a slight sense of burning. He left the hospital on July 20. On December 2, Dr. Rivetti, of Mairano, wrote that he had seen Boselli on the previous day, and that there was no trace of hydrocele.

Case 8. Andrea Baccolo, of Rivoltella, aged forty-seven, was admitted on July 19, 1873, with hydrocele of the left tunica vaginalis. On the 23rd, 200 grammes of fluid were removed, and the current from four Bunsen's pairs was applied for twelve minutes. There was no reaction, and he left the hospital on August 14, apparently cured. On September 24, however, he was admitted, the hydrocele having returned. Six days afterwards, the operation was repeated; six Bunsen's pairs being used, and the duration of the application being thirteen minutes. The next day there was much swelling of the testicle; this increased for ten days, but then gradually diminished. The patient left the hospital cured, on October (? November) 1. On April 14, 1874, Dr. Pasetti, of Rivoltella, wrote to Dr. Rodolfi that there had been no return of the hydrocele.

In summing up the results of these cases, Dr. Rodolfi observes that three (1, 5, and 7) were radically cured; two (6 and 8) required a repetition of the operation; in two (3 and 4) drainage was required to complete the cure; and in one (2) the hydrocele returned at the end of three months, but the patient did not again submit himself to operation. The failure in some cases, he believes, lies in the manner of operating rather than in any conditions of the patient. When the probe was carried continuously over the inner surface of the sac, the result was not favourable; but when it was allowed to rest for a short time in contact with a portion of the membrane, the reaction was more evident and the cure complete. He has hence adopted the plan of allowing the end of the probe to remain in contact with various parts

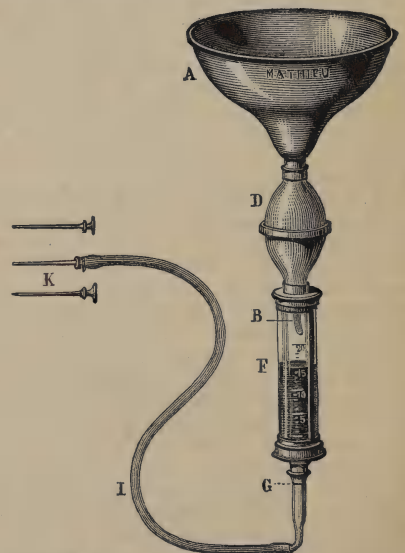
of the inner surface of the sac for twenty or thirty seconds; the entire operation lasting ten minutes.

A. HENRY, M.D.

NEW INVENTIONS.

NEW APPARATUS FOR THE TRANSFUSION OF BLOOD FROM ARM TO ARM.

This new apparatus, the fruit of much study by M. Mathieu, the surgical-instrument maker of Paris, was submitted to the Académie des Sciences of Paris and has obtained their approval. The apparatus consists of a glass receiver (F) communicating with a funnel (A) into which the blood is poured through a glass tube. A small India-rubber tube (B) is fitted to the receiver. Between the funnel and the receiver is an India-rubber bulb (D), which is traversed by the tube communicating between the two. This bulb, which is exclusively a reservoir of air, communicates by an opening with the glass receiver, and its compression has the effect of driving out from the latter a quantity of air proportional to the capacity of the bulb. When this regains its normal form, in consequence of its elasticity, it draws a part of the air from the receiver; the blood poured into the funnel overcomes the resistance offered by the India-rubber tube, which acts as a valve and enters the receiver. If, when the latter is half filled, pressure be made on the India-rubber bulb, the air contained in it, driven back into the receiver, presses on the liquid column



like a piston, and drives it into the conduct-tube (G) of the receiver, towards the vein. When after the first result has been obtained, the bulb is allowed to re-inflate itself, it takes the air from the receiver, a corresponding vacuum in which is produced; the blood is drawn into it, to be expelled by a fresh pressure on the bulb. Thus the elasticity of the bulb is the sole motive power of this apparatus, by alternately drawing the air of the receiver into the internal cavity, and driving it back from that hollow space into the receiver. It is this flux and reflux of the column of air from one hollow space to the other that is the condition of the motion imparted to the

blood in a manner determined by the arrangement of the valves.

Rapidity of operation is claimed for this new system; and as one minute only is said to be necessary for it, coagulation of the blood is not to be feared. By substituting the cannula of an ordinary syringe for the cannula K, which is used for transfusion, every kind of injection can be performed with this apparatus, without any fear of the introduction of air. By placing the India-rubber tube in the opening at the bottom of the funnel, its action on the bulb makes it into an aspirator, as above stated. When the apparatus is out of use, in order to keep the India-rubber bulb in good order, some water should be aspirated into the reservoir. For this purpose the apparatus should be turned upside down, the bulb should be compressed, and then allowed to re-inflate itself, when the water will enter it, and remain there until the apparatus is again called into requisition.

REVIEWS.

Clinical Medicine: Lectures and Essays. By BAL-THAZAR FOSTER, M.D., F.R.C.P., Professor of Medicine in Queen's College, and Physician to the General Hospital, Birmingham. 8vo, pp. 364. London: J. & A. Churchill. 1874.

Under this title Dr. Foster has gathered together a series of valuable monographs, which he has communicated from time to time to various medical journals, and in doing so has laid the profession under an obligation to him. An acute observer and an accurate reasoner on the phenomena of disease, he possesses the faculty of laying his conclusions out in clear and precise language. This collection of papers deals with various divisions of medicine, but especially with those of disease or disorder of the assimilative and circulatory systems. The first paper is on the Treatment of Ulcer of the Stomach, in which the different points to be attended to, in order to secure a satisfactory result, are laid down distinctly and intelligibly. In succeeding papers, Dr. Foster gives us some very interesting information on several points. One is the effect of ether upon the pancreas in increasing the flow of pancreatic fluid, and so securing the emulsification of a larger quantity of fat in the intestinal canal; by this means the assimilation of fat by the consumptive patient may be increased to the patient's benefit. This is a valuable idea, and should be tested by several separate observers, in order to see how far the plan is effective. Then follow some observations on the formation of lactic acid, and its relation to diabetes, of a practical nature. It is interesting to know that the treatment of diabetes by lactic acid has been productive of much corroboration of the theory of the lactic acid origin of acute rheumatism. In two of Dr. Foster's cases, this result was attained several times by resuming the lactic acid. Something yet unknown is required to produce the result in certain cases, which factor seems wanting in others.

In the papers dealing with the circulatory system there is much that is valuable. The practical importance of the sphygmograph and cardiograph in the diagnosis of diseases of the heart is clearly demonstrated. These means furnish valuable information even in tricuspid stenosis, a disease whose diagnosis up to a recent period has been regarded as

a theoretic possibility only. The diagnosis of the rupture of the aortic valve by violence, and the accurate prognosis founded thereupon in several cases by Dr. Foster, are clinical feats worthy of Skoda himself. The importance of recognising the anatomical fact that one aortic valve-segment has no coronary vessel springing from its sinus, and the consequent effect upon the nutrition of the heart and the maintenance of compensation in lesions of different valve-segments is well shown in the paper, which should be carefully coned by all stethoscopists. In reference to the use of digitalis, the writer's views are in accordance with the modern impressions as to its sedative action on the heart being due to its tonic effect rather than any palsyng action. The sentence 'digitalis restores the normal balance between the contents of arteries and veins' deserves a place as a permanent quotation in text-books on remedies. Dr. Foster's criticism of Dr. Peacock's explanation of the relation of diuresis to the condition of the circulation is well worth perusal.

Indeed, there is so much both practically valuable and also suggestive in this book of Dr. Foster's, that we can only hope that this volume will not be permitted to stand alone, but will ere long be followed by an equally worthy successor.

MISCELLANY.

THE PLAGUE IN NORTHERN AFRICA. — We learn from a correspondent that this scourge has extended itself to a village called Maish, about ten hours' journey from Bengazi.

DR. GRANT, F.R.S., Professor of Comparative Anatomy and Zoology in the University College, London, died last week at the age of eighty. He had held the professorship from the establishment of the college in 1828, and was the last survivor of the professors first appointed.

AN INDIGESTIBLE MORSEL. — At a late meeting of the Société Médicale des Hôpitaux in Paris, M. Dujardin-Beaumetz exhibited a flattened leaden bullet which had been swallowed by a child. It had remained eight days in the digestive organs, produced asphyxia at the outset, and was voided naturally without having given rise to the least symptom of lead-poisoning, after treatment consisting of the administration of purgatives and sulphuric acid lemonade.

THE DOG-HEADED MONKEY. — A full-grown specimen of the dog-headed monkey from Abyssinia has been presented to the museum of the University of Geneva. This monkey is characterised by the long hair upon its cheeks and the greater part of its body. It was held in veneration by the ancient Egyptians. Its figure is engraved upon the monuments of ancient Egypt, and there have been found mummies of the animal well preserved. According to Ehrenberg, this monkey served as the emblem for the god Thoth, the Egyptian Hermes, or Mercury, the mythical inventor of the arts and sciences, music and astronomy, and especially of speech and hieroglyphs, or letters, over which he was supposed to preside. The Abyssinians now call it Tota. Horapollon reports that this monkey was consulted in the temples; a tablet, reed, and ink, presented by a priest, were used as tests to ascertain if the particular animal belonged to the race that knew how to write. This representative of Thoth also symbolised the judgment of souls; and upon one of the temples of Philæ there is one represented with a balance in hand weighing the actions of men. In other places it is represented writing with a reed. Ehrenberg also supposes that it is the locks of this monkey that have served as the model for the perruques figured upon the heads of different divinities in the Egyptian mythology.

A NEW JOURNAL.—Messrs. Putnam & Sons, of New York, announce for October 1, a new quarterly journal of skin and venereal diseases, to be called the *Archives of Dermatology*. The journal will be edited by Dr. Duncan Bulkley, who will be assisted by a staff composed of the most eminent dermatologists and syphilographers of the United States. The German journal of the same subjects, ably edited by Drs. Pick and Auspitz, under the name of *Archiv für Dermatologie und Syphilis*, has now substituted the name *Vierteljahrsschrift für Archiv* in the title, and is published at Vienna in place of Prague.

UNDERGROUND AIR.—The hope of reward is no doubt a more generally powerful stimulus than the love of service. It is not surprising, therefore, that with the view of encouraging traffic, the authorities of the Metropolitan Railway have added smoking-carriages, after having satisfactorily demonstrated, when the question was discussed in Parliament on the score of public convenience, that it was impossible for them to do so. We believe that the present step will be satisfactory to the company and to smokers, but, in order to make it equally so to all travellers, we must suggest that some further attention be paid to ventilation. The existing flavour of sulphur, steam, and coal-smoke which pervades the atmosphere of the tunnels on the Metropolitan Railway is, to say the least, unpleasant; and the addition of a pervading cloud of stale tobacco-smoke might, we imagine, add to it the last touch of intolerable nastiness.

DECADENCE OF THE UNIVERSITY OF BERLIN.—The diminution in the number of students at the University of Berlin, which had already been noticed during the last three months of the summer of 1873, has again been observed during the six winter months of 1873-74. The *Gazette de Cologne*, commenting on this falling off, remarks that hitherto as a rule the University medical courses were more numerous attended than the other ones. It seems, however, certain that the number of students of medicine has sensibly diminished; one professor having 100 fewer students in his class than he had in the preceding year. In short; the number of students has reached its lowest point in comparison with former years. The University is now outstripped in numbers, not only by that of Leipzig, but also by the University of Göttingen, which now contains 1,000 students. It appears that in Germany the salary of the professors, which, inclusive of the students' fees, is considerable, is only increased if they be requested to transfer their services to other seats of learning, and if their departure be considered injurious to the interests of the university which they have hitherto taught. Thus distinguished professors have been drafted to the University of Berlin, but this has not been accomplished without promising them double the salary offered some years since. This increase of salary is rendered imperative by the continually increasing price of the necessaries of life in Berlin, as in other parts of Germany.

A PROFESSIONAL LAWSUIT.—A philanthropic lady, Frau Riedl, who died in Vienna last January, bequeathed 100,000 florins for the erection of a hospital for children in Liechtenthal, and in her will, appointed the medical faculty of Vienna as her executors and administrators of the fund. At that time the medical faculty consisted of the College of Physicians and the College of Professors. By the New University Act passed since her death, the College of Physicians has been separated from its connection with the university and faculty. As the result of this sudden change, the College of Professors claimed the sole management of the above-mentioned sum, and wished to build the hospital in Liechtenthal and to use it for teaching purposes; while the College of Physicians, on the other hand, claimed a common management, since the will of Frau Riedl was executed at a time when the physicians were still united with the university and faculty. They also protested against the conversion of the proposed hospital into a clinical school, which seemed to be the

object of the professors. The circumstances under which Frau Riedl, the sister-in-law of Dr. Lamatsch, one of the most faithful fellows of the College of Physicians, bequeathed this sum to the above-mentioned object, shows that by the medical faculty she meant the College of Physicians, and indeed this was the general understanding of the case in Vienna at the time. The inexorable determination of the College of Professors rendered a suit at law unavoidable. The Court decided that Frau Riedl intended the fund to be under the control of the different bodies at that time constituting the university. Although these are now separated, each retains a voice in the management.

SODA-WATER.—Dr. Lankester, the Medical Officer and Public Analyst of St. James's, has made a report on this beverage, as sold in his district, which deserves attention. 'This liquid,' he says, 'is sold in bottles, and is professedly an imitation of some natural springs which contain a certain quantity of carbonate of soda and carbonic acid. In England this water is entirely an artificial preparation, and is sold by chemists and druggists as a medicine, and by publicans as a beverage. It is supposed to contain from ten to fifteen grains of carbonate of soda in a bottle containing about ten ounces of water. The medicinal agency of this beverage consists in its carbonate of soda, and it becomes a matter of importance for sick people and convalescents, for whom this liquid is ordered, that they should have the supposed quantity of soda in the water.'

From an examination of six specimens of this water bought at chemists and druggists and publicans, I found that none of them contained in the bottle a residue of ten grains; that various other salts besides carbonate of soda were contained in the water, and that in some of them was a considerable quantity of organic matter.

'The conclusion I came to was this: that none of these waters were genuine mineral waters; that most of them contained less saline matter than the mineral water they represent contain; and that the only thing they contained in tolerably certain quantity was carbonic acid gas.'

It is certainly not pleasant to know that in artificial aerated waters the only thing tolerably certain is that we drink water laden with organic matter that is dangerously impure and charged with gas. When to this is added the danger of occasional lead-poisoning, it is not surprising that natural effervescent water of absolute purity and stable composition is beginning to acquire a preference over the soda and seltzer-waters of commerce.

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The London Medical Record.

WEDNESDAY, SEPTEMBER 9, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The following were among the papers read during the recent meeting in the department of Anatomy and Physiology, under the presidency of Professor Redfern.

Mr. B. Waterhouse Hawkins, F.L.S., F.G.S., made some observations, with graphic illustrations, on a pair of symmetrical bones present with the fossil remains of *Iguanodon* in the well-known slab from Maidstone, now in the British Museum, and compared those bones with their analogue, as found with a portion of the fossilised skeleton of *Hadrosaurus Foulkii*, in the marl beds of the cretaceous formation at Haddonfield, in New Jersey, North America. The bones in question had been described by Professor Owen and others as clavicles; but Mr. Hawkins, in making his restorations for the Park of the Crystal Palace, was unable, owing to the great length of the bones, to make room for them in his *iguanodon*, and he therefore had to abandon them, and make his model in such a manner as would be consistent with the animal being able to walk. A subsequent comparison of the bones with those of the American analogue led to the conclusion that they were abdominal, and the situation which Mr. Hawkins thought they occupied suggested the possibility of the *iguanodon* being a marsupial animal.

The President thought that Mr. Hawkins had, by his illustrations, completely demonstrated his position.

Dr. Pye-Smith said that the conclusion at which Mr. Hawkins had arrived was so startling that one would rather be disposed to replace the bones in question in their position of uncertainty than admit, without further investigation, their marsupial character.

Mr. F. M. Balfour read a paper on 'Some Points in the Development of Elasmobranch Fishes.'

Professor Huxley, said it might appear strange that it should be thought worth while to spend so much time upon such a question as the mode of origin of the young dog-fish; but it should be remembered that the dog-fish belonged to the same great group of animals as man, and all the points raised in connection with the former might be brought to bear on the origin of the latter.

Professor Redfern then read a paper on the influence of food, and the methods of supplying it to plants and animals. Plants, he said, entirely uninfluenced by any but physical conditions, had long since taught farmers, and gardeners especially, that they must not only have abundance of food, but that they must have it in a condition in which they can readily make use of it. In proof of this he need

only refer to the known necessity for the regular use of highly nutritious liquid manure in the cultivation of perfect roses, and to the care the agriculturist had learned to take in the application of the proper kind of artificially prepared manure for each crop, and in its use in a form in which the plant could most easily absorb and apply it. It was many years since that Mr. Ward gave a beautiful illustration of the influence of food on plants. He found a perfect specimen of the common centaury half an inch high, with one or two pairs of most minute leaves and one flower, on the bare chalk at the border of a wood; on tracing it into the open parts of the wood it became a glorious plant, four or five feet high, and covered with hundreds of flowers. He (Professor Redfern) wished to show that it was not only important to supply plants with food, but to do this so that they could easily appropriate it, otherwise the supply would be lost and wasted. He had brought with him a series of specimens of common rape, which would speak for themselves. The largest specimen measured five feet six inches high; they branched freely from the ground upwards at intervals of a few inches; their large leaves, thick and fleshy, measured fourteen inches by six inches, and their flowers once covered the plants with their brilliant yellow colour. The middle-sized specimens measured five feet two inches high, but for three feet from the ground they had no branch at all; their leaves were very small, and the plants were little more than a fibrous stem, with a few flowers at the top. The smallest specimens were only three feet high, having a few leaves not an inch long by $\frac{3}{10}$ ths of an inch broad, and a few flowers at the top entirely useless for any purpose whatever. Other specimens of an essentially similar kind were grown on another spot of ground, under circumstances essentially similar. Of these specimens a large number only measured fifteen inches high; they were furnished with a few almost linear leaflets and a few flowers at the top. Yet the larger specimens grown on this ground were five or six feet high, covered with large spreading branches, furnished with abundance of leaves, yielding a very large amount of good fodder compared with the amount of surface covered by them. With regard to the roots, those of all the poorer plants were straight, small, and but little branched; while those of the well-developed plants were thick, branched, and extended on one side only. For from four to six feet distant from the edge of the plot of rape on each side, the ground had been trenched two spades deep for planting with trees and shrubs, and a quantity of bog-earth with sand and manure had been mixed with it, the manure having been put at the bottom of the trench, and the mixed bog-earth and sand half way down. The only well-developed plants grew near the edge of this trenched ground, and their one-sided roots spread into it for two feet, exactly in the position occupied by the mixed bog-earth and sand. There were only occasional smaller plants at this part, and the roots of every one of these were straight, short, and but little branched. They, in short, had not discovered that there was soft and spongy ground within so short a distance, ground in which their roots might have revelled in growth like those of their neighbour giants, if they had been equally fortunate in finding their way thither. None of the thick long roots on the trenched side of the plants penetrated deeply into the trenched ground. It was the loose and spongy condition of the soil that had

attracted them, and not the manure, for not one root had attempted to penetrate to the depth of the manure—all had been content with the position of the mixed bog-earth and sand, thus affording an absolute demonstration of the necessity of attending to the mechanical of the soil as well as to its containing a sufficiency of the materials which plants needed for food. His plants of rape had abundant nourishment in their immediate vicinity, but they could not avail themselves of it, the soft spongioses of their roots being unable to penetrate the tough clay, which a great amount of labour had failed to render porous enough for roots of any kind to enter to any considerable extent. Such was exactly the condition in which many persons were who had never applied their intelligence to the selection of their food or to the methods of taking it. There were few social problems more important than how to acquaint the wife of the labourer or artisan, or even the wives and servants of the middle classes, how to expend a fair share of their income upon food to the greatest advantage, and how to prepare it without destroying its nutritive properties. A savoury dish of meat was often prepared by mincing or cutting the meat into small and more or less cubical blocks. It was then stewed, or more frequently boiled; the outer surface of each little block had its albumen firmly coagulated, and the whole was converted into about as indigestible a mass as could well be imagined, the high-priced and highly nutritious meat having been destroyed for the purposes of nutrition, and the action of the digestive organs probably injured for some time to come. Or good and valuable flesh-meat was subjected to the process of salting, which first of all abstracted the juices of meat, and then hardened the fibres, so as to destroy or greatly deteriorate its digestibility. No doubt it was convenient to have a hardened dry mass of meat incapable of much change for months, and ready to be used for the purpose of filling the stomach and effectually satisfying the appetite; but these were not the purposes for which food was intended to be used. It ought to be capable of supplying the waste of the body, and of being easily converted into heat and motion. If it failed in these particulars it would also fail in nourishing the brain, and aiding in the evolution of intelligence, and thus intellectual and bodily power was lost to the community, and deterioration of race was promoted. His colleague Dr. Gordon said that he recollected running races, putting stones, wrestling, and other athletic exercises being the favourite amusements of the sons and servants of the farmers in the County Down. Now nothing of the sort was heard of. These young men found a short day's work almost too much for them, and at the end of it they were to be seen lying about indulging in idle conversation. Coincidentally with this they imagined themselves the equals of their masters and mistresses, and that the healthful oatmeal porridge and butter-milk twice daily, with beans and bacon for dinner, was too strong and coarse; they insisted on more delicate fare, and demanded a supply of tea and white bread. They were unconscious that persons in their position but a few years ago possessed amazing vigour, and performed twice the amount of labour with greater ease, and when the day's work was over, actually revelled in the display of surplus strength which nothing but their better and more rational diet could have yielded them.

Dr. Pye-Smith said that there was no line between the animal and vegetable kingdom, and the same

laws applied to both, as shown by Dr. Redfern's paper.

Dr. John Moore said that in no part of the kingdom was Dr. Redfern's advice more needed than in Belfast, where a great amount of suffering, loss of wages, and degeneration was occasioned by deficient food and defective arrangements for its preparation. He referred especially to the large amount of tea (often prepared over night) consumed by the working classes. He believed that half of the disease among the mill-working population of Belfast was due to these causes.

A paper was read by Mr. E. R. Lankester on the the Development of the Eye of Cephalopoda.

This was followed by a paper by the President (Professor Redfern) on 'The Effects of Ozone on the Animal Economy.' He gave an account of a number of experiments with animals made to breathe oxygen mixed with ozone, and others made to breathe pure oxygen. The general results of these experiments were as follow. The respiration of oxygen with a 24th part of ozone for a very short time, say twenty seconds, is certainly fatal. The same gas, when resolved again into oxygen, is comparatively harmless, even when respired for long periods. Death from the ozone is not due to a closure of the glottis but to a congestion of the lungs, with emphysema and distension of the right side of the heart with a fluid or coagulation of blood, frequently attended by convulsions. If the ozone be respired in a dilute form, animals become drowsy and die quietly from coma, the condition of the lungs being the same, except that the emphysema is less marked. Animals that have respired oxygen more than twelve hours will now and then die suddenly from the formation of coagula in the heart, even after they have been in good health for some days.

LEFORT ON THE TOXICOLOGICAL INVESTIGATION OF PHOSPHORUS.

A problem of considerable importance was recently brought by a magistrate before the Society of Legal Medicine in Paris; it was this. In absence of the least trace of free phosphorus in suspected matters, and also of every characteristic morbid symptom, such as steatosis of the liver, may experts conclude—from having observed an abnormal quantity of phosphoric acid, or of ammoniaco-magnesian phosphate, in the substances subjected to chemical analysis—that there has been poisoning by phosphorus? A committee was appointed to examine the point, and the following is an abstract of the report presented by M. Lefort.

1. *Phosphoric Acid.*—At the time when poisonings by phosphorus began, it was supposed that, though the suspected matter might not present the poison in the natural state, the presence of phosphoric acid might be regarded as proof of crime. This view is now rejected by the majority of chemists. Two toxicologists of high authority, MM. Tardieu and Roussin, pronounce against it. They say, 'All our different organs and tissues, all our common articles of food, contain, it is known, very considerable proportions of alkaline and earthy phosphates, and especially phosphate of soda and phosphate of lime. The mere presence of phosphoric acid proves nothing.'

This precept is of the greatest importance, and experts should never forget it, for it is the expression

at once of prudence and of truth; as we hope to show from experiment.

It is worthy of remark that most chemists who have inferred poisoning by phosphorus from the existence of phosphoric acid have not taken into account that, as time progresses after death, certain organs become acid, from having been neutral, or even alkaline, during life; still less have they assured themselves as to the cause of this acidity. We know, however, that when organic substances begin to decompose, the first result observed is the formation of one or several organic acids at the expense of the sugar and the animal dextrine disseminated in the principal parts of the economy, as the liver and the muscles. It is only later that ammoniacal products appear, and that these matters become alkaline.

But this is not all. If, from the various organs, we come to the food-supply of the stomach and the intestines, we find conditions still more favourable to the formation of those organic acids which medico-legal analysis may altogether confound with phosphoric acid, more or less impregnated with phosphates. We shall see that the muscular flesh of animals contains less of animal phosphates than bread; but the latter, undergoing, in the stomach, the series of phenomena of digestion, and then of fermentation, produces, from the starch of which it is largely composed, relatively considerable quantities of an organic acid, which is, without doubt, lactic acid.

One understands then, how experts have often ascertained an exceptional acidity of some matters contained in the stomach, such as bread. But it is another thing to prove that this acidity arises from a mineral acid, such as phosphoric acid, rather than from a biphosphate or an organic acid like lactic acid, which may be fixed in large proportion in the muscular tissue. Certain experts know this so well, that they generally pass in silence the processes they have adopted for separating distinctly the phosphoric acid from the organic acids, lost, in some sort, in the animal substances more or less advanced in decomposition. The fact is, that these acids accompany each other in all the chemical operations to which they are subjected in order to isolation; so much so that still, notwithstanding the numerous works undertaken by savants of the first rank, the nature of the compound to which gastric acid owes its acidity is unknown; this being attributed by turns to lactic acid, hydrochloric acid, and biphosphate of lime.

Generally, criminal poisonings with phosphorus are effected with less quantities of phosphorised preparations than suicides by this poison. On the other hand, the first care expended on individuals who have been poisoned has the effect of eliminating, by vomiting and purging, a very considerable proportion of phosphorus more or less in the state of a simple body. It is, then, only the quantity of poison absorbed, and spread throughout the system, that experts have to isolate in the state of phosphoric acid. Some authors, Reveil in particular, suppose that it is possible to determine the quantity of phosphorus contained in a known weight of suspected matter, comparatively with the phosphorus which may be found in an equal weight of the same organ not poisoned. Your committee cannot sufficiently protest against such an affirmation; because it may lead to results much to be regretted.

Indeed, for this to be admissible, it would be necessary to suppose that the proportion of normal phosphates is absolutely the same at all ages of life, in all the organs, and that it is the same not only

with man, but also with the aliments which serve for his habitual nourishment. Now this is not the case, as the following experimental data prove.

M. Verdeil has analysed the blood of a certain number of carnivorous animals and of herbivorous animals, and has ascertained that the blood of the former is much richer in phosphates than that of the latter. Thus, while the blood of man gave 9·74 of phosphoric acid per 100 parts of ash, ox-blood furnished only 3·40 for the same weight.

We have determined the proportion of phosphoric acid in the muscular flesh of a patient who died in the Hospital de la Pitié, and found in it 0·179 per 100 grammes of fresh matter. The muscular flesh of another subject who died rapidly from an accident furnished 0·333 grammes of combined phosphoric acid per 100 grammes of flesh-tissue, *i.e.*, nearly double. The liver of this same individual contained 0·288 grammes of phosphoric acid also in the state of phosphates. Lastly, the stomach of a woman who died in a very few days from pneumonia, contained 0·186 grammes of combined phosphoric acid for the same quantity of fresh substance.

We may further cite as proof of the extreme variation of phosphates in the animal economy the experiments of Dr. Bence Jones, who found that in 1,000 grammes of urine the earthy phosphates reached before meals 0·21 to 0·75, and after, from 0·97 to 1·91; in the same quantity of urine the alkaline phosphates varied before meals, from 6·5 to 8·1, and after meals, from 4·72 to 6·67.

M. Couerbe long since discovered that the brain of idiots and old people was always less rich in phosphorus than that of healthy adults. On the other hand, M. Bourgoïn has shown that the proportion of phosphorus in the brain is never the same in different individuals, and that even in the white and the grey matter of the brain this quantity may vary by nearly a third.

According to M. Roucher (one of the committee) 100 grammes of matter from the following organs of a subject dead from atrophy of the liver, contained of phosphoric acid (free or combined)—liver, 0·517 grammes; lungs, 0·205; kidneys, 0·274. The same organs of another subject who died poisoned with phosphorus, furnished—liver, 0·493 grammes; lungs, 0·274; kidneys, 0·339. Thus the liver of the subject poisoned by phosphorus furnished to analysis less phosphoric acid than that of the individual who died from atrophy of the liver.

It is true that the lungs and kidneys of the second contained more phosphoric acid than the same organs of the first. But who could affirm with justice that there had been ingestion of phosphorus, because the lungs and the kidneys of an individual said to have been poisoned contained six to seven centigrammes of phosphoric acid more, for the same weight of substance, than those of another individual who died under normal conditions? The mode of analysis adopted in the circumstances could not even guarantee this difference. On the other hand, it should not be ignored that the system contains, under the name of protagon, a complex animal matter in which phosphorus is in the state of a simple body, but molecularly united with oxygen, carbon, nitrogen, and hydrogen.

We have submitted to analysis a certain number of organic matters, more especially utilised for the food of man; and the results are these.

One hundred parts of fresh food contained, of phosphoric acid—

| | Grammes. |
|---|----------|
| White bread (crumb and crust) | 0'049 |
| Beef (fillet) | 0'395 |
| Veal do. | 0'374 |
| Pork do. | 0'430 |
| Carp (muscular flesh of back) | 0'345 |
| Pike do. do. | 0'465 |
| Ray do. do. | 0'514 |
| Mackerel do. do. | 0'533 |
| Brain of ox (grey and white substances) | 0'502 |
| Brain of sheep do. do. | 0'760 |

We call to mind that Dr. William Marcet has communicated analyses of muscular flesh of ox, taken from various subjects, in which the proportion of phosphoric acid varied from 0'404 to 0'438 per 100 grammes of fresh substance.

These examples serve to show how variable is the proportion of phosphates in the principal aliments of man, and how difficult it is, not to say impossible, to pronounce upon the part belonging to the phosphoric acid of these normal phosphates, and the part of phosphoric acid formed by the phosphorus introduced criminally. Toxicological chemistry should carefully record these facts, for they represent the safeguard of justice. We say, therefore, in concluding, that *the proportion of phosphoric acid found in suspected matters subjected to chemical analysis is not a convincing proof that there has been poisoning by phosphorus.*

2. *Ammoniac-magnesian Phosphates.*—Is the presence of a comparatively large quantity of crystals of such phosphates in putrefying animal matters the indication of an ingestion of phosphorus during life?

The proportion of these crystals has always been subordinated to that of phosphates, whether normal or accidental. Whenever a dead body, buried some time, is in active decomposition, the large quantity of carbonate of ammonia produced, the magnesian salts of the organic matter, or even those which are brought by water of the grave, and lastly, the normal phosphates, produce by their special affinities ammoniac-magnesian phosphate, which crystallises more easily the more ammoniacal the medium in which it is formed. It is, however, to the abundance of these crystals in suspected matters, that, in some medico-legal investigations, recourse has been had for concluding that poisoning by phosphorus has taken place.

Your committee rejects absolutely this evidence, because it is not convincing in the least. We have only to cast our eye over the preceding table to be convinced that the quantity of normal phosphates is more than sufficient to produce in animal matters, that are in course of decomposition, crystallised ammoniac-magnesian phosphate, very visible to the naked eye, and still better with the microscope.

Consider *e.g.* that the muscular tissue contains normally, and on an average, four thousandths of combined phosphoric acid. If, by calculation, we convert the whole of this acid into ammoniac-magnesian phosphate, we find that there may have been formed 13'80 grammes of this salt, easily distinguished by its great insolubility and the regularity of its crystallisation; and yet we are supposing that the waters of infiltration, which very often permeate the graves of cemeteries, do not bring with them phosphates which might increase those of the bodies.

What, then, is the share to be assigned to normal phosphates and to phosphates arising from ingestion of phosphorus? It will not be forgotten that phos-

phorus is a poison of great energy, and that it can only, in general, be administered in the smallest quantity, because its special characters (odour and phosphorescence) soon reveal a criminal intention; lastly, that it is rather a poison of contact and absorption than a poison of localisation, and consequently the system cannot long accumulate it in the framework of the tissues. Every one knows, besides, that the absorption and elimination of phosphorus are so prompt, that the first urine of the individual poisoned in this manner is luminous, and yet death may not occur for seven or eight days after ingestion of the poison.

Such are the considerations which lead us to conclude that neither the presence, nor the quantity of phosphoric acid and crystals of ammoniac-magnesian phosphate in suspected matters, can be considered as proof of poisoning by phosphorus in the natural state.

ALEX. B. MACDOWALL.

RICHARDSON ON THE VALUE OF HIGH POWERS IN THE DIAGNOSIS OF BLOOD-STAINS.

Two questions are often asked of the medical jurist: 1, is a given stain blood? and 2, if blood, from what animal is it derived? To the first question, thanks to micro-spectroscopy, we are able to give an unhesitating reply; to the second we are silent. Any attempt at laying the foundation for a reply to this question, we hail with satisfaction. Such an attempt is made by Dr. Joseph G. Richardson, of the University of Pennsylvania, in a paper published in the *American Journal of Medical Science*, for July. But we should be sadly in error if we regarded Dr. Richardson's work as complete.

Dr. Richardson says that, by the use of very high powers, the microscope will answer the question from what animal is the blood derived? We may urge that the difference is too minute to render the test of use, when the life of a man depends upon the opinion; but Dr. Richardson says, as a shot-dealer distinguishes at a glance the different numbers of shot, so a skilful microscopist ought to recognise different sizes of blood-corpuscles under his instrument. Dr. Richardson, however, denies that the differences between the sizes of the different blood-corpuscles are minute when measured by the one-fiftieth inch; with such a power the human red corpuscle appears about one inch and one-eighth in diameter; and he asserts that with such a magnifying power, mistake to the skilled microscopist is impossible. All this is very well. Dr. Richardson however, first alleges that the difference in the size is not minute, and then argues how often evidence has been given on a minute fraction of a grain of arsenic which no balance can weigh. But two wrongs do not make a right. If the reaction of arsenic be not distinct by more tests than one to the unaided vision, we hold that no toxicologist has a right to assert its presence as a cause of death.

But again: the measurements of the blood-corpuscles of an animal show great variation. This irregularity, it may be said, renders the mere measurement as a decided test unreliable. To this question of irregularity due to varying sizes, Dr. Richardson replies: 1st, that the variations in the size of fresh blood-corpuscles is exceedingly slight, and he quotes measurements in proof; and 2ndly, that it is only in dried corpuscles variation is notice-

able, and this Dr. Richardson calls 'a pathological change.' But Dr. Richardson seems to forget that the medical jurist is not often called to examine *fresh* blood, and that he is very often required to examine *old* blood. Admitting, therefore, the fact which Dr. Richardson asserts (and we cannot just now prove or disprove it), that the source of fresh blood can be recognised by this high microscopic power, with the blood-stain dried and shrivelled, as the medical jurist usually has it presented to him, Dr. Richardson seems to allow it may possibly be imperfect.

And again, it must be urged that, when a man's life depends on the opinion of the microscopist, it should be something more certain than the calculation 'of a blood-corpuscle's ratio of contraction by drying.' But Dr. Richardson replies to this, by arguing that a human red corpuscle is very much larger than that of an ox, or horse, or pig, or goat, etc. 'If, therefore (says Dr. Richardson), a human red corpuscle did contract so as to be mistaken for that of an ox (and he admits that it may), he says such evidence would only mislead us into assisting in the acquittal of a criminal, and could not betray us into aiding to convict an innocent person.' We confess to being astonished at such an assertion. It might be (such cases have occurred) that the discovery of the blood of an ox or horse would, if it did not hang a man, be strong evidence against him in a trial, as well as the discovery of human blood. Surely, therefore, Dr. Richardson admits that mistakes may occur even with his high powers.

Dr. Richardson further asserts that the cell-wall of a red blood-corpuscle is nearly or quite inelastic, and hence cannot expand. Therefore, he points out, the red corpuscles of an ox cannot expand when moistened to the size of a red human corpuscle. He admits, however, that a change of shape does produce an apparently slight increase in size. Again, he argues from this that a criminal is safe. We confess that we cannot see it. If the blood-corpuscle of an *ox* cannot *expand* (and it may apparently do so), the blood-corpuscle of a *man* may *contract*. The source of fallacy is the same. And we are at a loss to see why, because a corpuscle of an ox cannot expand to the size of a red corpuscle of a man, although the red corpuscle of a man may shrink to the size of a red corpuscle of an ox, 'a mistake can never occur which will lead to the punishment of an innocent party.'

Dr. Richardson gives numerous illustrations of measurements and successful determinations of the source of blood stains submitted to him. In moistening the blood-stains, Dr. Richardson advises the use of a glycerine solution, and that the part of the stain used for the examination should be the edges rather than the central portion, because from the centre numerous fibrin filaments are more likely to be obtained, and they interfere with the investigation by forming a network around the cell walls, and so confusing the outline.

Dr. Richardson's paper is interesting, but we are afraid the question often put, 'What is the source of the blood in a stain?' must still go unanswered. In questions where capital punishment hangs on scientific evidence, that evidence must be of no doubtful or questionable nature; and we entirely fail in endorsing Dr. Richardson's opinion which he so confidently states, that 'We are now able, by the aid of high powers of the microscope, and under favourable conditions (!) to positively distinguish stains produced

by human blood from those caused by the blood of any of the animals just enumerated,* and this even after the lapse of five years from the date of their primary production.'

ANATOMY AND PHYSIOLOGY.

MARCEY ON THE NUTRITION OF ANIMAL TISSUES.—In a pamphlet (pp. 52) giving an account of an experimental inquiry into the nutrition of animal tissues, Dr. Marcey arrives at the following conclusions. 1. The physical constitution of a muscle resembles that of a jelly. 2. In all tissues there are three classes of substances: (a) those forming the ripe tissue, which are insoluble in water; (b) those constituting the nutritive material, soluble in water, and colloid; (c) the effete products, soluble in water, crystalloid and diffusible. 3. The nutritive material and ripe tissue have the same chemical composition. The mature tissue is merely the nutritive material in an organised form, the change from one to the other being purely morphological. 4. In muscle, the whole of the phosphoric acid is eliminated in the form either of a neutral tribasic phosphate or a pyrophosphate of potash. At the same time, some phosphoric acid and potash are present in flesh which are not in the proportion of a phosphate, and take part exclusively in the formation of ripe tissue. 5. The albuminous constituents of muscle appear to be eliminated as kreatine, kreatinine, and other crystalloid substances. 6. Muscular tissue takes from the blood more potash than it requires for its formation, the excess being necessary to the elimination of phosphoric acid by converting it into a crystalloid phosphate. 7. The nutrition of lung-tissue appears to differ from that of muscles by being much more rapid, for it contains a much larger proportion of nutritive substance, and much less waste than muscular tissue. 8. Potash is eliminated from the lungs in great measure as crystalloid carbonate, instead of in the form of phosphate, as it is in muscles. This is due to the carbonic acid in the lungs. 9. The proportion of phosphoric acid and potash is different in wheaten flour, potato and rice, but the proportion of total to colloid phosphoric acid and potash is very nearly the same in each. 10. Muscles in phthisis differ from the normal in containing less nutritive material and mature tissue, rather more water, and a much higher proportion of chlorine and soda. 11. In phthisis, the waste of muscles occurs in the normal way, and the potash and phosphoric acid present in the effete products are in exactly the right proportion to form a pyrophosphate. 12. The emaciation in phthisis appears due mainly to the blood not being in the proper condition to supply nutritive material to muscular tissue. The damp or wet state peculiar to muscles after death from phthisis appears to show that their colloid state is somewhat deficient in that disease. 13. The tubercular or adenoid formation in pulmonary tissue actually undergoes nutrition, and is consequently a growth, the phosphoric acid of potash being apparently eliminated, as in the case of muscle, under the form of a crystalloid phosphate. The nutrition of the abnormal growth accounts for the almost invariable absence of any smell of decompo-

* Viz., the pig, $\frac{1}{3}$ in.; the ox, $\frac{1}{4}$ in.; the red deer, $\frac{1}{5}$ in.; the cat, $\frac{1}{6}$ in.; the horse, $\frac{1}{8}$ in.; the sheep, $\frac{1}{10}$ in.; the goat, $\frac{1}{12}$ in.; the average of the human corpuscle being $\frac{1}{15}$ in.

sition when a *post mortem* examination is made shortly after death from phthisis. 14. The softening of tubercular substance appears due to a loss of colloid power. It can hardly be due to an increase in the proportion of water, as softening tubercle contains very little more water than healthy lung. 15. There appears to be no increase of fat in tubercle, the mean being 2.14 per cent. in healthy, and 1.95 in diseased lung-tissue. The diseased lungs, however, contain more water, and the proportion of fat in their dried residue is slightly greater than in the dried residue of healthy lungs. 16. In nature, soluble matter is undergoing perpetual transformation, passing in rotation from the crystalloid to the colloid, and again from the colloid to the crystalloid condition. Chloride of sodium alone appears to be an exception to this rule.

T. LAUDER BRUNTON, M.D.

THOMSON ON THE DECOMPOSITION OF EGGS.—In a paper lately read before the British Association at Belfast, Mr. William Thomson said that researches on this subject were commenced by the late Dr. Crace Calvert and himself about the beginning of October, 1870, and extended over the following year and a half. From numerous experiments he drew the conclusions that whole eggs could only be attacked by one, two, or all, of three different agencies of decomposition. The first, which he termed putrid cell, is capable of being developed within some eggs, no matter how effectually their shells be protected by varnished coverings from the spores floating in the atmosphere. It is generated from the yolk. In some cases the yolk begins to swell and absorbs most of the white; in others the yolk bursts, and its whole substance becomes thoroughly mixed up with the white; and in others again it begins to change slightly, and then gives off minute cells into the white, rendering the white turbid; but in all cases where this takes thorough hold of the contents of the egg, true putrefaction commences, and the albumen emits a putrid smell. The minute granules or cells of the healthy yolk, when this decomposition commences, assume a morbid vitality; they grow large, and become filled with small cells; each large cell then bursts, and the smaller cells take independent existence. These cells are the bioplasm of the yolk, which, had the egg developed into a chicken, would have gone to form its flesh, bone, and tissues. These cells, under their morbid vitality, absorb oxygen, and liberate carbonic acid gas. Two eggs had their shells well varnished over with shell-lac, and were set aside on a shelf for one year, and both then opened. One appeared as fresh as on the day when it was set aside, but when the other was struck with the point of a knife to open it, the pressure of gas contained within the shell burst out, and scattered parts of its contents in all directions. The next germ of decomposition—the vibrio—appears under the microscope like a small rigid worm which swims about. These animalcules are constantly found floating about in the atmosphere, but never penetrate into the contents of an egg if the shell be kept dry, but if the shell be moistened or wet, the dried bodies of these animalcules develop in that water, assume much vitality, and then penetrate the shell and set up putrefaction. Eggs were placed in fluids swarming with different animalcules, some like cork-screws, which swam by quickly turning round; others which appeared under the microscope like flukes, but which really had the form of an egg; some with one, some with two feelers, which swam by switching those

feelers into a quick serpentine motion in front of them. These, however, were not able to penetrate the shell of the egg. The third is the fungus decomposition. The spores of this fungus are found everywhere floating in the atmosphere. They settle on the shells of eggs placed in stagnant atmospheres, and send myriads of filaments through the shell in all directions, sometimes binding all sides of the shell together, in all cases converting the white into the consistency of a strong jelly, and often the filaments grow in such immense numbers as to make the whole contents appear like a hard-boiled egg. This fungus acts on the air exactly like animalcules, absorbing oxygen and liberating carbonic acid gas.

SLAVJANSKY ON THE DEPENDENCE OF THE MEDIUM CURRENT OF THE BLOOD ON THE DEGREE OF EXCITATION OF THE SYMPATHETIC VASO-MOTOR NERVES.—Kronid Slavjansky (*Arbeiten aus der phys. Anstalt zu Leipzig*, 1874, and abstract in *Centralblatt für Chirurgie* no. 19, 1874) has made a large number of experiments upon the inferior vena cava and carotid artery of young dogs and rabbits, to ascertain whether the rapidity of the whole blood-current was increased or diminished when a large number of sympathetic and vaso-motor nerves were stimulated simultaneously. Simultaneously with the estimation of the rapidity of the volume of blood flowing out of the inferior vena cava, the blood-pressure was measured in the carotid. The inferior vena cava was employed for the experiment, because its blood passes through muscles, bones, skin, and the intestines, *i.e.*, through organs which stand in the most different relations to the vaso-motor nerves. The results obtained from the vena cava were controlled on the carotid by two series of experiments. The blood caught from the carotid was measured in the apparatus of Tappeiner (Ludwig's *Arbeiten*, 1872), whilst a mercurial manometer was placed in the carotid of the opposite side.

From observations on the spinal cord of curarised animals, Slavjansky, obtained the following results.

1. The quantity of blood which passes through the heart varies with the stimulation of the spinal cord; after division of the spinal cord it sinks below the normal, after stimulation of the same it increases from five or six to ten times.

2. With this increase of the blood flowing through the heart, on stimulation of the spinal cord, *i.e.*, of the sympathetic vaso-motor nerves, the pressure in the aortic system also rises, because the contents on one part of the vascular system (inferior vena cava), are driven by stimulation of the nerves which cause contraction of the vessels into the aorta, and so the contents and pressure are here increased.

In order to control the correctness of these results, the vascular area, which was closed, or at least lessened by stimulation of the sympathetic nerve-fibres, was artificially shut off by ligature of the intestinal arteries and of the portal vein; and on stimulation of the splanchnic nerve, the following results were obtained.

1. Ligature of the cœliac, and of the superior and inferior mesenteric arteries, led to obstruction to the aortic current, and therewith obstruction of the flowing off of blood in a wide area. The rapidity of the quantity of blood flowing in the vena cava is somewhat diminished, the pressure in the aortic system increased.

2. Ligature of the portal vein produced widening

of the current area of the vessels of the abdomen, and filling with blood; the pressure in the aortic system was diminished until death; and there was diminution of the volume of blood flowing.

3. Stimulation of the splanchnic nerve produced closure of the abdominal arteries and emptying of their contents. Pressure in the aortic system was increased, and there was an increase in the volume of blood flowing.

WILLIAM STIRLING, D.Sc., M.B.

CLARK ON CERVICAL RIBS.—In the July number of the *Glasgow Medical Journal*, Mr. Clark records a case of cervical ribs, in a subject of which neither the sex nor probable age is mentioned. What appeared to be the first rib on the left side was abnormally broad, being one inch and a half in length at its sternal end. There were only eleven ribs on this side, while on the right side the number was normal. With the vertebra immediately above that to which the abnormally broad rib was attached, and on the same side, was articulated a rudimentary rib, one inch and a half in length, having a well-marked capitulum and tuberculum, attached by complete joints to the centrum and transverse process of the vertebra. This rib corresponded in position to an unusually narrow but complete rib on the right side, having a well-defined scalene tubercle, lying betwixt deep grooves for the passage of the subclavian vessels, thus contrasting with its fellow on the opposite side, on which these characteristic landmarks were but faintly defined. It was discovered, on closer investigation, that the rudimentary left upper rib, and the upper rib on the right side which was so distinctly ridged and furrowed, both took origin from the seventh cervical vertebra, and must therefore be regarded as true 'cervical' ribs. Unfortunately, before a close investigation of the ribs was made, the lumbar vertebræ, together with the sternum and clavicles, had been removed; for it would have been interesting, seeing that out of twelve ribs present on each side only eleven were thoracic, to have ascertained whether the number of lumbar vertebræ had been, in compensation, raised to six. Mr. Clark quotes, as parallel to his case, that of a Chinese, recorded by the late Mr. Holmes Coote, in whom the ribs were attached to the twelve middle vertebræ (thoracic) of the trunk, six cervical vertebræ being left free above, and the same number of lumbar vertebræ below. [A fair proportion of cervical ribs support the subclavian vessels, and have been thus diagnosed even during life. Halbertsma went so far as to lay down a formula that a cervical rib 5·6 centimètres and more in length, will support the subclavian artery, while one shorter than 5·1 centimètres does not support the vessel. Professor Gruber not only regards this as untenable, but asserts that the grooving of the upper surface of a cervical rib is due as much to the lower roots of the brachial plexus as to the pressure of the subclavian artery. See further, Turner 'On Supernumerary Cervical Ribs,' *Journ. of Anat. and Phys.*, Nov. 1869; Gruber 'Ueber die Halsrippen der Menschen,' *Mém. de l'Acad. Imp. des Sciences de St. Pétersbourg*, tom. xiii.; Henle, *Knochenlehre*, s. 72.—*Rep.*]

COLLINS ON ACCESSORY LOBES OF THE HUMAN LUNGS.—Dr. Collins describes (*Transactions of the Royal Irish Academy*, vol. xxv.) the occurrence of an accessory pulmonary lobe in a male, about fifty years old, and reviews the literature of the subject.

This structure, of which a figure is given, occupied the angle between the upper portion of the right lung and the posterior part of the root of the same. It was pyriform in shape, had a broad peduncle, and lay upon the bodies of the five upper dorsal vertebræ in an accessory pleural pouch, which communicated with the general pleural cavity only around the peduncle. The trachea was completely separated from the spinal column by the pouch; and the azygos vein, at the head of the fifth rib, after receiving the superior intercostal tributary, instead of arching over the bronchus behind the pleura, entered the margin of the pleural fold. This latter, moreover, covered in the accessory lobe and isolated it completely, save at the peduncle, from the upper portion of the lung.

The earliest recorded abnormality of a similar nature was that laid by Wrisberg before the Royal Society of Göttingen in 1777; and since then Rokitsansky, Bouchaud, Chiene, Cleland, and Wenzel Gruber have directed attention to the same subject. Seven cases in all have been described, Wrisberg's being the only one in which the accessory lobe was on the left side.

Dr. Collins feels inclined to give assent to Dr. Cleland's theory, that early in foetal life, from such cause as a slight adhesion of the lung to the wall of the thorax, the azygos vein, when drawn downwards by the descent of the heart so as to be made to run at a right angle to its originally transverse direction, dragged down and became enwrapped in a fold of pleura, thus deeply notching the lung instead of slipping behind both structures.

As regards certain other accessory lobes described by M. Pozzi and Professor Rektonzik, probably homologous with the 'lobus impar' which occurs in lower mammals from the quadrumana downwards, Dr. Collins would consider such 'as merely examples of that redundant lobulation not unfrequently seen in other viscera, and as not meriting the title or consideration of special accessory lobes.'

J. C. GALTON.

EBNER ON THE ACINOUS GLANDS OF THE TONGUE.—In a pamphlet recently issued, Herr von Ebner describes a series of small glands chiefly situated near the back of the tongue in man and mammals. They are best seen in guinea-pigs, and consist of an excretory duct lined by a single layer of epithelium and opening out into a series of alveoli resembling those of the pancreas. The fluid secreted is peculiar in containing no mucin. The glands have accordingly been termed *serous* glands.

HUIZINGA ON ABIOGENESIS.—In a paper published in *Pflüger's Archiv* (Band viii.), Dr. Huizinga opposes the statements of Samuelson and Burdon Sanderson, and adheres to his own previously expressed views, which are in favour of the origin of organisms; without the co-operation of pre-existing organisms, in other words, in favour of spontaneous generation. He objects to the employment they made of hermetically sealed tubes containing but a small amount of air, a condition which is unfavourable for the development of life. He himself used septa and corks, if they may be so called, of porous earthenware. He exposed the fluids with which he experimented to a temperature of 212° Fahr., or a little above, which, he believes, killed all organisms and their germs. Notwithstanding this, he found bacteria in a mixture of potassium nitrate, magnesium

sulphate, calcium phosphate, starch, peptones, and grape-sugar. When such a mixture was exposed to a temperature between 220° and 230° Fahr., however, no bacteria appeared.

PATHOLOGY.

BENEDIKT ON LYMPHORRHAGIA ('GRANULAR DISINTEGRATION' OF LOCKHART CLARKE).—Professor Benedikt (*Mittheilungen des Aertztlichen Vereines in Wien*, 1874, Band. iii. Nr. 10) refers in the first place to a previous communication of his own, on the conditions of the lymphatics in inflammation, in which he showed that the presence of the so-called 'inflammatory nuclei' depends upon the accumulation of lymph-corpuscles which have undergone a chemical change. To clear the way in the discussion of the present topic, Dr. Benedikt proceeds to consider the questions, 'What is lymph?' and 'Whence come the lymph-corpuscles?' To the first question he gives the obvious reply, 'Lymph consists of the contents of the lymphatic vessels.' To the second he answers, with equal precision, that the lymph-corpuscles must either be formed in the vessels or drawn thither from without. In inflammation, which is essentially an exaltation of normal processes of circulation and nutrition, there is no doubt that the white corpuscles pass by determinate routes into the lymphatics, and suffer certain chemical changes.

In the essay under notice, the author applies his views as to the nature of the lymph, and its vessels, to the elucidation of the pathological condition of the spinal cord, which has been designated by Dr. Lockhart Clarke, 'granular disintegration.' Great as is the authority of the distinguished English anatomist, observes Dr. Benedikt, he is perhaps one of the least read as regards his *original* writings [On the continent only?—*Ref.*] Often as the term 'granular disintegration' is quoted, but few authors seem to have consulted the original essay. In Germany, adds Dr. Benedikt, this same lesion has been described by one author, without any apparent suspicion that it is identical with that described by Clarke.* The description there given will serve for the same changes as observed by the author in a case of paralytic dementia. To follow Dr. Clarke's description, the morbid deposit is seen around vessels, and, under the microscope, is seen to present a delicate, transparent, and very granular aspect. The granular mass is thicker towards the centre, becomes punctiform, and is marked off from surrounding structures by a sharply defined margin. Within, the remains of broken fibres and vessels may be seen, and in the centre a circular opening may be found. Around it were crowded numbers of amyloid bodies.

Dr. Benedikt states that, in order to avoid misunderstanding, he submitted his preparations to the inspection of Dr. Clarke, who admitted their identity with the appearances above described. The deposit which the author describes as being contained both within and without the adventitia of the perivascular spaces, included so-called inflammatory nuclei in great numbers. Dr. Benedikt particularly points out that the deposit, both within and external to the adventitia, is of the same nature, and derived from the same source. Arndt, the author adds, has also

admitted the relationship of this deposit to lymph, although he considers the perivascular spaces, according to Golgi's process of injection, to be artificially produced.

The next point discussed is, how the deposit arrives outside of the adventitia. Doubtless, Dr. Benedikt remarks, either from rupture of the membrane, or from transudation without rupture, more frequently under the former condition; it is often found in inflammation that the nuclei in the lymphatics are not separated by any membrane from the perivascular space. The adventitia is dissolved, and disappears in the hyaloid degeneration. The destructive influence of the deposit extends to the surrounding textures. One space may be found filled with the diaphanous granular matter, in which traces of a previously existing vessel may be traced in the concentric arrangement of inflammatory nuclei. At the same time effusion of this deposit through an unaltered adventitia, may be demonstrated. The pressure of morbid exudation will necessarily be most evident at the point of least resistance. For these reasons the author believes 'granular degeneration' to be a pure *Lymphorrhagia*—a process by which the pathological results of inflammation may be washed away.

With reference to the present subject, Dr. Benedikt criticises a paper by Dr. Clarke on the pathology of Tetanus (*Med.-Chir. Trans.*, 1865), and considers that the appearances are misunderstood by Dr. Clarke when he describes the structures as broken down and reduced to the state of granular disintegration.

[It may be stated, however, that Benedikt has not seen Dr. Clarke's preparations, showing the changes of the cord. We would take occasion also to observe that, inasmuch as the existence of perivascular lymph-spaces is somewhat more than doubtful, any criticisms or reasoning founded thereon are liable to be proved fallacious.—*Ref.*]

W. B. KESTEVEN.

LETZERICH ON THE EVULSION OF A DIPHTHERITIC TONSIL.—Dr. Ludwig Letzerich writes as follows in no. 28 of the *Berliner Klinische Wochenschrift* (July 13, 1874). At the beginning of June I received from Dr. Rosenkranz, of Usingen, a freshly torn-out tonsil, with the following history. It was from a stoutly built child, three years of age, whom he first saw on May 14 last. It was said to have recovered from epidemic parotitis, but now had a hard swelling at the left angle of the lower jaw. Examination showed a yellowish dirty-looking patch on the left tonsil, which was removed with forceps, and a strong solution of caustic applied. The diphtheritic process was not checked, and two days before its death the child was unable to swallow, and in one of the suffocative attacks tore out with its own fingers two portions, including the tonsil I received, and a part of the velum palati; this was followed by very free hæmorrhage, for which Dr. Rosenkranz was summoned, but the child died before he could reach the house. The death occurred on June 3. The long duration of the illness is noteworthy. The torn out masses were deeply tinged with blood. The larger one (the tonsil) was one inch long, and five-eighths of an inch in diameter; the smaller portion (a piece of tonsil and part of the soft palate) one-third of an inch nearly in diameter, and three-quarters of an inch nearly in length. Both pieces had numerous fringe-like appendages, from one-eighth to three-eighths of an inch in length. On section they appeared

* Beale's *Archives*, no. ix. &c.

composed partly of spongy (crumb-like) tissue, partly of a reticular structure, very irregularly intermingled. The spongy portions could be easily detached, like the scales of an onion, only less regularly arranged, and they were most abundant at the point first attacked, and on the free surface of the tonsil. The smaller piece had a spongy structure throughout. All over the section there were coagula of blood; partly in enormously dilated blood-vessels with thin walls, especially in the veins, and partly extravasated into the tissues of both specimens. Wherever blood had been extravasated, the surrounding tissue was blood-stained for some distance. Microscopic examination showed that the spongy portions consisted of tissue undergoing molecular disintegration (fibrillæ of connective tissue, with round cells), in which sporules of the diphtheria fungus of about $\frac{1}{1000}$ of an inch in size, were found, either singly or in broad black masses, $\frac{1}{833}$ to $\frac{1}{250}$ of an inch in length, and $\frac{1}{1250}$ to $\frac{1}{500}$ of an inch in breadth. [There seems some mistake in these figures, probably due to the decimal point being misplaced.—*Rep.*] Besides these sporules, there were here and there vast masses of the micrococci of the diphtheria fungus. (The author refers to a forthcoming paper of his, 'On the Development of the Diphtheria Fungus' in Virchow's *Archives*). Sections of the smaller specimen gave similar results, except that bundles of elastic tissue were met with in the connective tissue undergoing molecular disintegration, and some of these were quite free from the fungus. Only the portions which appeared sound to the naked eye resembled the normal structure, when examined microscopically. Even in these, for the most part, one missed the beautiful spheroidal cells, usually found in the fine meshes of their connective tissue, and they were often replaced by astonishingly large masses of the micrococci of the diphtheria fungus, whose presence in the meshes of connective tissue had given rise to destruction or disappearance of the cellular elements. On the free surfaces of the tonsils, on both sides, and especially in the patch first attacked, the naked eye perceived destruction of tissue most clearly, and fungi in various stages of development were seen by the microscope. Some of the micrococcus masses were bell-shaped. We have here, therefore, an extremely severe case of mycosis of the tonsils. It was most developed in the deeper tissues (parenchyma) of these organs, and set up molecular degeneration, which allowed the whole of one tonsil to be torn away. In commenting on the case, Dr. Letzerich explains the great differences between the course and severity of different cases of diphtheria, by the fact of the fungus finding a favourable soil or nidus in one case, and not in another. When the soil suits the parasite, the development of its sporules and its aerial fructification is enormously rapid, leading to swift destruction of tissue. When it meets with a less friendly soil, its sporules are converted into fine mycelial threads, and the case may be easily cured, perhaps spontaneously. He has observed that when the oral secretions are very alkaline, the exudation, once removed, is not generally reproduced; hence the mycelium is of subordinate importance in itself, but, should it subsequently find a suitable soil, it may give rise to development of lower forms. The two hyphomycetous forms, one aerial and the other growing in fluids, into which the fungus occasionally sports, have little or no influence on the animal organism. The more the soil is prepared, by means of fermentative

changes induced by the micrococcus-masses on the tonsils, the more rapidly and fully do the parasites develop, and the exudation keeping pace, the tissues become infiltrated and destroyed. [Whether or not we admit that the fungi play so important a part as Dr. Letzerich states, in the history of diphtheria, this case is one of great interest, and his promised paper on the diphtheria fungus will be eagerly welcomed. The reporter has met with several cases of 'muguet' or 'thrush' in the mouth in the course of other diseases, in which the fungoid elements exactly resembled the growths found in pityriasis versicolor, namely, grapelike masses of sporules, with a network of mycelial threads, the so-called 'microsporon furfur.' In cases of diphtheritic exudation he has found repeatedly masses of sporules, etc., and fibrecells resembling the 'oidium albicans.'—*Rep.*]

W. BATHURST WOODMAN, M.D.

BARBOSA ON A SANGUINEOUS CYST OF THE DURA MATER.—At the meeting of the Society of Medical Science, in Lisbon, on May 9 (*O Correio Medico de Lisboa*, June 24), Dr. Barbosa showed a large cyst, situated on the inner surface of the dura mater. It extended over the left cerebral hemisphere, which it depressed considerably. It had a vertical diameter of 18.5 centimètres (about seven and a quarter inches) posteriorly, and of ten centimètres (nearly four inches) anteriorly. Its transverse diameter was 4.5 centimètres behind, and three in front. Its capacity was 350 grammes (about twelve and a half ounces). Except in the region of the tumour, there was no change beyond considerable hyperæmia. The dura mater of the cranium, on being stripped off, did not present any change, and was of the same thickness as that on the right side.

The cyst appeared to be formed between two layers of the dura mater, which were separated by blood. But, on more careful examination, it was found that the outer wall of the cyst was formed of the dura mater, and the inner one of a newly formed very vascular fibrous membrane, almost as thick as the dura mater, and attached externally to the arachnoid. The cavity of the cyst was full of semi-fluid blood, of a chestnut or chocolate colour, with some small dark-yellow clots. Microscopic examination showed that the cyst contained blood-corpuscles altered in form and granular; the colouring matter (hæmatine) forming irregular masses. No crystallised colouring matter or hæmatoidin was found.

The subject from which the specimen was taken was a man aged sixty, of sanguineous temperament and strong constitution, who had been admitted into hospital on March 9, and died thirty-eight days afterwards with symptoms of cerebral compression. The diagnosis before death was congestion of the brain. The patient walked to the hospital and was reported to have been ill about eight days. He was of intemperate habits. His answers to questions were incoherent, and his pulse was slow, sixty in the minute.

Dr. Barbosa attributed the lesion to the abuse of alcoholic drinks, leading to hyperæmia of the meninges and hæmorrhagic pachymeningitis, to which the hæmatoma was due. He agreed with the opinion supported by Calmeil, and Cruveilhier, that hæmorrhagic cysts of the meninges are due to the formation of vascular false membranes within the dura mater, as the result of inflammation of the arachnoid, or of the cranial dura mater. Virchow interprets the formation of these hæmorrhagic

cysts (meningeal or intermeningeal apoplexy), by supposing that the hæmorrhage is preceded by a chronic inflammation of the dura mater, which is frequently seen in mental disease leading to dementia. The inflammation leads to the false membrane, within which successive layers may be deposited by repeated inflammatory attacks in the course of years. These false membranes become very vascular, and their blood-vessels are very thin-walled and fragile, and are consequently easily lacerated and pour out blood.

A. HENRY, M.D.

MEDICINE.

BALFOUR ON THE DIAGNOSIS OF DISEASE OF THE HEART.—In a lecture reprinted from the *Edinburgh Medical Journal* for June, 1874, Dr. George W. Balfour discusses the diagnosis of cardiac disease generally, with special reference to the value of the information derivable from the symptoms and the physical signs. The lecture, while comprehensive, is remarkably concise, and it is consequently by extract rather than by abstract that its principal contents would have to be recorded. After referring briefly to the two most common symptoms of organic disease of the heart—shortness of breath and dropsy, the author describes the systematic physical examination of a patient suffering from such a condition, and discusses the various phenomena which may be elicited. The pulse at the wrist, the venous and the arterial pulse in the neck, the visible and palpable signs presented by the chest and epigastrium, and the results of percussion and auscultation are considered in succession. Under the head of inspection, Dr. Balfour makes the following observations on the diagnosis of adherent pericardium: ‘Depression of the precordial region is much more rare than its elevation, and is the result of previous pericarditis and the indication of the adhesion of the visceral and parietal portions of the pericardium. We must distinguish between a permanent and general depression of the cardiac region and those rhythmical depressions of the intercostal spaces which occur over the apex, or even over a more extended portion of the heart’s surface; which are often the result of adhesions of the pericardium, not only to the heart but also to the pleura and through that to the walls of the chest; but which are sometimes, especially on thin-walled chests, the simple result of atmospheric pressure depressing the intercostal spaces at the moment of cardiac contraction where no adhesions exist: this form of rhythmical depression being invariably associated with some degree of enlargement—not always hypertrophy—of the heart and consequent displacement of the lung.’ And again: ‘In rare instances, a pulsatory movement is also communicated to the epigastrium through the movement of the heart’s apex during the ventricular systole, pulling upwards an adherent pericardium, diaphragm, and liver. This movement is, of course, exactly the reverse of that in ordinary epigastric pulsation. As this extensive adhesion is, as a rule, only the result of a severe and extended inflammation, affecting uniformly the whole surface of the heart, we can readily understand how, in such circumstances, a universal undulatory movement may be perceived, in which when the heart’s action is at all rapid (over ninety beats per minute), it may be

difficult to say what parts of the motion are systolic and what are diastolic. In these circumstances, the variations in time between the movements of any two parts are readily rendered visible, by attaching to each, by means of a pellet of bees-wax, a bristle carrying a small paper flag; and when the pulse is over ninety, this is the only way in which such differences can be ascertained with any certainty; and it is a means of attaining certainty of diagnosis often of much importance, especially when we have pulsations visible above the fourth rib, which may possibly be either aneurisms of the aorta or pulsations of the auricle.’

In percussing the præcordium, Dr. Balfour takes as the vertical line not the left sternal border, but a line one inch to the left of that, which shall be uninfluenced by the aorta and the pulmonary artery.

Referring to accentuation of the second sound at the base of the heart, Dr. Balfour says, that ‘an accentuated pulmonary second is constantly present in every form of cardiac disease involving obstruction to the onward flow of blood, and is the most persistent of all the acoustic phenomena indicative of cardiac disease, being frequently the only thing markedly abnormal to be detected.’ On the other hand, ‘accentuated closure of the aortic semilunar valves, from a general or systemic cause, is not to be thought of; it can only arise from some local cause.’ He does not believe that increase of arterial tension has this effect; and ‘arrives at dilatation of the ascending aorta chiefly, and partly also of the innominate artery, as the sole active causes in producing accentuated closure of the aortic semilunar valves.’ As regards endo-ardiac murmurs, Dr. Balfour insists upon the fact that no murmurs, except the auriculo-systolic, he so-called presystolic murmur, can ever be accepted as a definite sign of actual cardiac disease.

J. MITCHELL BRUCE, M.D.

SIGERSON ON GENERALISED VASO-MOTOR PARALYSIS OF THE UPPER EXTREMITIES.—Dr. Sigerson (*Le Progrès Médical*, April, 1874) remarks that the cases which Dr. Maurice Raynaud has quite recently published on local asphyxia of the extremities present some pathological facts of considerable importance, and which seem to bear on the theoretical explanation which has been drawn from experimental physiology. It is well known that, on dividing the great sympathetic nerve, the vascularity and heat of the corresponding parts of the body are increased, but disappear on galvanising the peripheral end of the nerve. The diminution of heat, however, may be the result of other causes; thus:—1. On dividing the fifth cerebral nerve, hyperæmia of the conjunctiva follows, with falling of the temperature; 2. On tying the veins of the ears of a rabbit the smaller veins dilate, then there is sanguineous stasis, and the ears become cold. In such cases, according to the beautiful experiments of Claude Bernard, a notable augmentation of heat follows section of the sympathetic nerve. It is not so with regard to the lowering of the temperature and the absence of blood which are produced by ligature of arteries.* Now in patients under the observation of M. Raynaud, ‘the extremities,’ he says, ‘become cold, with cyanosis and lividity, and with sensation of a more or less painful kind. Afterwards, in grave cases, gangrenous points make their appearance. The disease is sym-

* Claude Bernard, *Leçons sur la Phys. et la Path. du Système Nerveux*.

metrical, and any accidental symptoms may be intermittent? He thinks that these phenomena must be attributed to derangement of vaso-motor innervation, and that the symmetrical nature of the lesions must depend on excitation arising from spinal centre. He has put forward the hypothesis of spasm of the smallest branches of the vessels, which may vary between simple diminution of calibre and complete closure. With complete closure there would be a bloodless and cadaveric state of the extremities, while with the arterioles alone closed, and the smaller veins open, there would be venous stagnation from want of impulsion, producing cyanosis and the livid aspect, which is seen in the majority of cases. This hypothesis raises some difficulties. It is known, however, that, according to the experiments of Brown-Séquard,* irritation of the vaso-motor nerves produces partial ischæmia, coldness, pallor, and a marked depression of vital activity. But we must not forget that in maladies of this kind, very important lesions have been discovered by M. Charcot (*Leçons sur les Maladies du Système Nerveux*, p. 126), who expresses himself thus: 'As to spontaneous gangrene, which has been attributed to vascular spasm, it would not, if I may judge from my own observations, seem to have the signification which has been given to it, for in all the cases of this kind that I have met with I have found the calibre of the arteries narrowed by the alteration of the arterial walls or blocked up by thrombus.' Similar phenomena of lowered temperature are found in scleroderm, in which we may believe in a diminution of the calibre of the arterioles of the skin in consequence of the morbid process. From the experiments of Waller, who found that ischæmia was soon followed by hyperæmia, in consequence of the withdrawal of nervous influence, we might be tempted to draw a conclusion against the existence of a continuous spasm in non-hysterical patients, if M. O. Weber had not succeeded, as he states, in producing for nearly a week a constant irritation of the cervical sympathetic, marked by a lowering of 2° Centigrade of temperature; but then no disturbance of nutrition supervened. It must be added that Dr. Raynaud cites, in support of his hypothesis, unusual pulsations of the central vein of the retina, and partial spasmodic strangulation of the arteries of that region, which were sometimes met with in the cases of local asphyxia which he has collected.

J. LOCKHART CLARKE, M.D.

CANTILENA ON CALLOUS MEDIASTINO-PERICARDITIS.—Dr. Paolo Cantilena relates (*Giornale Veneto di Scienze Mediche*, July, 1874) a case of pleurisy complicated with 'callous mediastino-pericarditis.'

The patient was a young man, aged twenty-two, a printer, of general good health and somewhat lymphatic temperament, who was admitted into the hospital at Belluno, on the twentieth day of an attack of pleurisy of the left side. The amount of sero-fibrinous liquidation was moderate, the constitutional disturbances slight, and he appeared to be recovering under treatment by diuretics and rest. A substernal pain, however, though slight, directed attention to the heart, which had been thrust to the right of the sternum. At this part there was heard a short murmur with the first sound, more distinct at the apex, as well as another murmur during the

brief pause following by the normal second sound. The intermediate murmur was modified by compression of the chest and by changing the position of the patient, and was diagnosed to the pericardial. The amount of pericardial effusion caused the dulness on percussion to extend some centimètres to the right of the sternum, and as high as the second intercostal spine; on the left, it became blended with the dulness produced by the pleuritic exudation, and below was limited by a curve with the concavity directed downwards.

Under the use of digitalis, quinine, and diuretics, the fever ceased, and the area of cardiac dulness was lessened, the limits of the pleuritic exudation remaining unchanged; the normal heart-sounds were heard, and the pulse acquired strength. The slight œdema of the face and neck, however, which had accompanied the pericarditis, visibly increased, and was attended with a cyanotic tint; the left external jugular vein was distended; the liver was enlarged, reaching below nearly to the umbilicus, and reaching above to the intercostal space near the sternum, to the seventh in the axillary region, and to the tenth rib posteriorly. The spleen was a little enlarged. There was very slight œdema of the lower limbs.

While the pleuritic exudation was absorbed under the use of tonics and resolvents, the heart, though it had returned to the left of the sternum, did not follow the respiratory movements of the diaphragm, but remained fixed at the same height, and, on percussion over a part reaching from the base of the heart as far as the second intercostal space, increased dulness was heard for about two centimètres to the right of the sternum. This led Dr. Cantilena to infer that the œdema and cyanosis of the face and neck, and the enlargement of the liver, depended on the presence of the results of mediastinitis, which impeded the return of blood through the venæ cavae.

This diagnosis was confirmed, Dr. Cantilena believes, by two phenomena which were observed. On making the patient breathe deeply, while the finger was kept on the pulse, the pulsations of the radial artery were observed to become more frequent; when expiration commenced, they ceased altogether; and the pulse then suddenly resumed its normal rhythm. On auscultation at the same time, there was an absence of the first sound over the aorta. The second phenomenon was the distension of the left external jugular vein during inspiration.

At the time of the report the patient was improving in health, under the use of iron, quinine, iodide of potassium, and liberal diet.

[This case should be compared with those described by Kussmaul (*LONDON MEDICAL RECORD*, December 17, 1873); and with Dr. Clifford Allbutt's case of mediastinal sarcoma, reported in the last number of the *British Medical Journal*.]

BERTI ON A CASE OF DEATH FROM ACETONÆMIA, OCCURRING IN A DIABETIC PATIENT.—The *Giornale Veneto di Scienze Mediche* for April contains the history of a case of fatal acetonæmia related to the Royal Venetian Institute of Sciences, by Dr. A. Berti. The patient was a woman aged thirty-one, married, and the mother of four children, in whom symptoms of diabetes mellitus began to appear in June, 1873. She was admitted to hospital on November 27, when the following was her condition.

She was of good physical conformation, but very emaciated and anæmic. In the right subclavian and corresponding supraclavicular regions there

* Course of Lectures, 1860, p. 147.

were diminished elasticity and resonance on percussion, rough inspiration accompanied by subcrepitant rales, prolonged expiration, and increased vocal fremitus and resonance. In the other parts of the chest nothing was heard beyond dry sonorous rales, with some bubbling. Nothing abnormal was discovered on examination of the heart, liver, spleen, and intestines; the teeth were carious, the breath offensive; the urine was copious, having a specific gravity of 1060, and containing sugar in the proportion of fifty grammes per litre. The skin was dry; the patient complained of a disagreeable pasty taste; pains in the gums and teeth, inodorous sour eructations; pain in the epigastrium; great thirst, polyuria, and excessive appetite; she had a dry cough, and was very weak; she was obstinately constipated, and complained of burning and itching during micturition. The pudenda were red and hot, and covered with a dirty viscid discharge. There were no signs of disturbance of general sensibility or mobility. Of the special senses, sight alone appeared to be affected. She had double vision, and at one time she had difficulty in distinguishing darkness from light. The intellect was unaffected.

She remained in nearly the same state during four days. The temperature in the axilla varied from 99.5° to 101.1° Fahr., and the quantity of urine passed in twenty-four hours amounted to four or five litres, the amount of drink taken in the same time being from three-and-a-half to four litres. There was no trace of albumen; the quantity of sugar remained the same as on the first day, the proportion being greatest in the evening.

On the night of the fourth day, the medical officer on duty was called to her on account of a sudden change in her condition. He found her suffering from severe dyspnoea, with dry tongue, flatulence, and pain in the abdomen, and prescribed a calmative mixture and a purgative enema. The next morning, when Dr. Berti saw her, she lay on the bed in a state of profound coma, from which she could not be roused. Now and then she uttered a sharp cry, at the same time carrying the right hand automatically to the head. The eyes were closed, the pupils dilated and almost insensible to the stimulus of light; sensation and motion, as well as reflex action, were almost extinguished; the respiration was frequent, difficult, and hoarse. The discharge of urine was completely suspended; none escaped through the catheter on its introduction early in the morning, but somewhat later about a hundred grammes (between three and four ounces) were removed. This urine contained an abundance of sugar, had no trace of albumen, and under the microscope showed only a few epithelial cells and some blood-corpuscles. The patient also exhaled an odour as of chloroform.

From a consideration of the patient's history and symptoms, Dr. Berti concluded that he had to deal with a severe form of acetonæmia. He therefore applied a blister to the nape of the neck, painted over the lower limbs with a mixture of mustard and alcohol, and ordered a purgative enema and stimulants internally. The patient remained in the same state about twenty-four hours, and then died. The odour already described became more intense, and at last escaped from the open mouth of the corpse.

The symptoms in this case, Dr. Berti says, bore a close resemblance to those described by Cantani in speaking of acetonæmia.

'In the fourth type of acetonæmia' (says Cantani),

'the patient falls unconscious, and presents all the appearance of being under the influence of chloroform. There is generally a very strong smell of acetone in his breath and urine; the muscular debility is enormous; the pupils do not act; when the arms are raised, they fall again like those of a dead man; the abdomen is in a state of meteorism, through paralysis of the intestines; the renal secretion is suppressed, the mucous membranes become dry; the skin is not acted on by revulsives, or only slightly; the pulse becomes small and weak; and finally death ensues.' We might say that in such cases there is truly a general paralysis of the animal and organic system, due to the narcotising action of acetone produced in excess in the system.

At the necropsy, the sinuses of the dura mater were found to be gorged with blood; there was venous congestion of the meninges; the subarachnoid space and cerebral ventricles contained serum; the substance of the brain was somewhat softened. There was no apparent change in or near the fourth ventricle. The lungs were congested and oedematous; the apex of the right was scarcely permeable to air. The heart was small and contracted; its walls and valves were healthy; the liver was rather hard, and much congested; the spleen was normal; the kidneys were anæmic, but presented no change of structure; the bladder had several spots of ecchymosis of various size in its interior. There was nothing remarkable in the other organs. An odour of acetone escaped from all the cavities of the body, including the head.

Dr. Berti sent to Professor Bizio, for examination, some of the blood from the left ventricle of the heart, pieces of the brain and liver, and one of the kidneys. Distinct evidence of acetone was found in all on the application of chemical tests. Sugar was also found in the blood and in the viscera, the smallest amount being in the brain.

A. HENRY, M.D.

SURGERY.

BOINET ON GASTROTOMY.—M. Boinet says (*Gazette Médicale de Paris*, April 25, 1874), gastrotomy has been and may or ought to be practised in certain lesions of the digestive organs. He quotes seven cases of accidental wounds of the stomach (from various sources) all ending in cure, and argues that a scientific operation should give at least equal chances.

In Cases 1 and 2 the wounds appear to have been small, but large enough to allow the escape of beer in the one case and food in the other from the external opening. The first, treated by rest and the internal administration of alum, was well in seventeen days. The second was treated by three bleedings, and passed through a sharp attack of traumatic fever, with disturbance about the wound, but was quite well in seven weeks.

Cases 3, 4, and 5, were similar, but the wounds appear to have been larger and were treated by suture. [By what kind of suture, and how used, is not clear.—*Rep.*] All recovered perfectly. In Case 6 the stomach and part of the omentum formed a hernia which could not be reduced, as each attempt caused a curious suffocative paroxysm: later, an attempt to cure by suture failed, the stitches tearing out. Nature cured the fistula, however, in two months.

Case 7 is the well-known one of the Canadian who

was wounded by gunshot, and in whom a fistulous opening remained, by means of which Beaumont experimented on digestion.

From these cases M. Boinet argues :

1. That openings made into the stomach do not necessarily cause death ;
2. That they may be cured by suture ;
3. That the great danger lies in the escape of aliments or blood into the peritoneum.

Hence gastrotomy for certain wounds and diseases of the stomach and intestines is a justifiable operation, provided great care to prevent escape of matters into the peritoneum be taken, or if any do escape they must be thoroughly cleansed out. He quotes the success of ovariectomy in support of his view.

[M. Boinet hardly makes here a fair comparison ; the matters from stomach and intestine, full of ferments or germs of putrefaction, can hardly be compared with ovarian fluid, which, we know, may escape without harm. How is it in accidental perforation of the intestines ?—*Rep.*]

J. KNOWSLEY THORNTON.

VANDERVEER ON STRICTURE OF THE URETHRA. Dr. A. Vanderveer, of Albany, in a report (*American Journal of Medical Science*, July, 1874), of twenty cases of stricture of the male urethra with treatment, makes the following remarks :

From the foregoing cases, we are led to believe that the treatment of stricture by gradual dilatation when possible, is by far the simplest and safest method. To insure success, the gradual dilatation must be kept up for years at intervals. In strictures of small calibre, where it is only possible to introduce the whalebone guide, divulsion in the membranous portion, and internal urethrotomy in the spongy portion, are the better methods. Strictures in the spongy portion, in consequence of their painful character, do not well bear treatment by gradual dilatation, particularly if the case be one of long standing.

The twenty cases reported include eighteen of gonorrheal origin and two of traumatic origin. Eleven were cases of single stricture, six presented two strictures for treatment, one case offered three strictures, another five, and another six for treatment. Seven cases were submitted to the treatment by gradual dilatation, three to gradual dilatation combined with divulsion, two to gradual dilatation with meatotomy, one to gradual dilatation with urethrotomy, one to a combination of gradual dilatation, meatotomy, and urethrotomy, three were treated by divulsion only, two by divulsion and meatotomy, and one by meatotomy and urethrotomy. The shortest time any patient remained under the surgeon's treatment was one week. The treatment of one case occupied eight months. All the patients recovered.

Comparing the methods of treatment with regard to their duration, it may be observed that the three cases submitted to divulsion were dismissed, two at the end of a week each, and one in fifteen days. Of those patients treated by gradual dilatation, two were dismissed at the end of two months, one at the end of four months, one at the end of five months, two after six months' treatment, and one at the expiration of eight months.

[Gradual dilatation may be the simplest and safest method of treatment in Dr. Vanderveer's estimation, but it is, according to his own cases, by no means the speediest method.—*Rep.*] J. CROFT.

OBSTETRICS AND GYNÆCOLOGY.

BÉHIER ON TRANSFUSION IN EXTREME ANÆMIA.—M. Béhier relates this case in the *Bulletin Général de Thérapeutique*, March 15 and 30, 1874. The operation was performed on a young woman aged twenty-one, who had been confined of a male child sixteen months previously, which she nursed up to the time of entering the Hôtel Dieu. The catamenia came on when she was thirteen years, and continued regular until she became pregnant. They returned eleven months after the birth of the child, being regular as to time, but excessive in quantity. They were fifteen days behind time when she was suddenly seized, on January 12, with severe flooding, which continued until the 14th, when she was brought into the hospital in a most exhausted condition from excessive loss of blood. On examination, the vagina was found filled with clots ; the cervix was short, large, and firm, and the os half open. No tumour could be felt, nor did digital examination give rise to any pain. Ice was applied to the abdomen, and steel given internally, and the vagina plugged. This arrested the flow for a time ; but it recurred on the removal of the plug. The woman being in extreme danger, it was decided to transfuse as the last chance.

The instrument used was the Moncoq-Mathieu hæmatophore, which admits of transfusion without first of all defibrinating the blood, and is a combination of the two instruments of M. Moncoq and M. Mathieu. In operating, the vein of the patient is opened by a lancet, as in phlebotomy, care being taken not to divide the vessel, and the cannula was introduced. A similar operation is performed on the person from whom the blood was taken. The instrument is previously warmed to a temperature of 39°-40° C. (102° to 104° Fahr.) with pure warm water. The blood should be forced in very slowly, and in a continuous stream ; if this precaution be neglected, death is liable to occur from syncope or convulsions, accompanied with vomiting, as has been shown by Dr. Brown-Séquard. The syncope is most probably the result of paralysis of the right ventricle of the heart from over-distension. There are other accidents liable to happen, the explanation of which is not easy. For instance, if the blood be introduced too abruptly, or in too great quantity at a time, the patient will be observed to fall suddenly into a kind of inertia ; at the same time the face swells and becomes pale, the eyelids puffed, assuming a slightly violet tint ; there is almost complete torpor, and the patient dies, not suddenly, but after some hours. Whether this be the result of asphyxia consequent on engorgement of the lungs through too much blood being injected at a time, or whether from cerebral asphyxia through too rapid distension of vessels of the brain consequent on the arrest of the pulmonary circulation, or whether it be the effect of paralysis of the right ventricle, it is not clear. Another symptom of much importance, is a short dry cough. As soon as it occurs, the transfusion should be stopped, for it is the first indication of pulmonary congestion. Care should be taken not to inject too much blood at one time. If there be any necessity for injecting more blood, it is far better to repeat the operation.

In the present instance, eighty grammes of blood were transfused on January 29. Immediately after the operation, the patient presented a wan look ; at

times the face was puffed. The respirations were laboured and deep; she tossed about, was slightly delirious and anxious, and said that she felt dying. The excitement increased, coupled with dyspnoea and mournful cries. An hour and five minutes after the operation the voice was stronger, and she complained that her feet were swelling. She evidently displayed more force than before. Five minutes later she was able to raise her head without difficulty, and take a little wine, which was retained; the pulse was imperceptible at the radials. Ten minutes later she was still in continual agitation; she thought her abdomen was swelling as well as her feet. The respirations were rapid, gasping as in asphyxia. Her face was haggard, and slightly cyanotic. This condition continued for about an hour and a half (until three hours after the operation), when a change for the better took place. The hands became warm, the pulse stronger; the patient said that she felt better. At the end of two hours and a half (four hours after the transfusion) the haggard appearance of the countenance entirely disappeared; the face showed signs of returning colour; there was no delirium nor agitation. Six hours after the operation, she had been able to take, without vomiting, a basin of soup and nearly a bottle of wine. The pulse was full. She could listen without fatigue, and distinguished colours. The headache had entirely disappeared. The bleeding entirely ceased from the moment of the operation. She made rapid improvement during the next two days. On the evening of the third day (January 31) there was a rapid rise in the temperature of 3°C ., but she felt well and asked for more food. M. Béhier considered that there was probably a 'fièvre d'alimentation,' as it soon subsided. On February 4 she was out of danger, and could eat, drink, etc., as usual. Up to the date of the report (two months after the operation) convalescence continued without a relapse.

M. Béhier is strongly in favour of using the normal blood, not defibrinated; for, although the fibrine of the blood has been regarded by many physiologists as an excrementitious product—a waste material destined to be eliminated—still the experiments of Magendie have conclusively proved that the fibrine is not without its use, and that blood deprived of it gives rise to engorgement and visceral hæmorrhages. Still more recently M. Cl. Bernard has arrived at almost the same conclusion, and, according to him, if the fibrine have an use still little known, it is certainly no inconsiderable one, for, without doubt, it keeps the corpuscles suspended in the blood. M. Béhier entirely agrees with Gesellius of St. Petersburg, that the red corpuscles are deformed and crenated—in fact, 'battus à mort'—by the process of defibrination. The following statistics are given as conclusively proving the superiority of the transfusion of the normal blood, over the defibrinated.

M. de Belina collected 155 cases, which were nearly all the known cases up to 1869. In 1871, Asche (Schmidt's *Jahresbericht*) collected seventy-five fresh cases, making in all 230. Unfortunately, the results were given without stating what the conditions were or what kind of blood was used. M. Marmonier, however, collected thirty-four observations in which defibrinated blood was used. There were twenty-two deaths—a mortality of two in three. In 113 cases natural blood was employed; thirty-four died, *i.e.* one in three only. Professor Hüter (Greifswald) performed arterial transfusion in twenty

cases; some died, others survived. The advantages are not worth the increased risk.

Finally, the blood of mammalia have been injected; the experiments of M. Denis and Lower proved that from 400 to 600 grammes of sheeps' or calves' blood could be injected with impunity into a man; but the investigations of M. Dumas, Prévost, Dieffenbach and Bischoff, tend to show that the admixture of heterogenous blood is frequently rapidly fatal. M. Landois (*Centralblatt*, 1873, nos. 56, and 57) found that the serum of the blood of an animal dissolved more or less rapidly the red corpuscles of the blood of another animal. The solvent power of the serum was different in different animals, the least in dog's blood.

The effect, therefore, of transfusing the blood of an animal would be very transient in its effect, as the hæmatine would be slowly dissolved and eliminated by the bowels and the kidneys.

The author, in conclusion, regards transfusion as a reasonable, vigorous, bold and efficacious therapeutic remedy, and as such, recommends it with confidence to the profession.

PAJOT ON THE CAUSES OF ERROR IN THE DIAGNOSIS OF PREGNANCY.—In a previous paper, Dr. Pajot discussed the more ordinary and well-known conditions which render the recognition of pregnancy at times difficult. In this paper (*Bulletin de l'Académie de Médecine* for June) he proceeds to treat of the more exceptional instances, and mentions a symptom, which he designates 'choc fœtal,' or fœtal impulse, discoverable between the fourth and fifth month of gestation, as highly diagnostic, and, when once heard, as certain a sign as the sounds of the fœtal heart. The *modus operandi* he gives with great precision.

The writer instances *extreme thinness of the uterine walls* as an occasion for error. It is a rare condition, and, when met with, the enlarged uterus is not unfrequently mistaken for a cystic tumour. The extent to which this can go is marvellous, the fœtus appearing to be just beneath the skin. *The death of the fœtus* within the first few months renders diagnosis extremely difficult and obscure. The chief thing is to decide whether the tumour is the uterus or not. This is best effected by placing the proned left hand on the abdomen, so as to grasp the fundus with the tips of the fingers, and with the right index finger to push up the cervix. Any impulse given is immediately perceptible. Then the order is reversed, keeping the right hand fixed and making movement with the left. Velpeau maintained that by this means the uterus could be as easily measured as if it were on the table.

It should always be remembered that the body of the normal non-pregnant uterus cannot be felt in any of the culs-de-sac when digital examination is only lightly made, so as to put the pouches gently on the stretch. This arises from the junction of the body and the cervix being the narrowest part of the uterus. If the body be easily felt, it is either a pathological or a physiological condition, and requires the greatest care and nicety to decide which it is. Pregnancy being diagnosed, M. Pajot strongly urges that the waters should not be ruptured or labour hastened when the fœtus is dead, as septic poisoning is very liable to occur from rapid decomposition of the macerated fœtus. As long as the membranes are intact, maceration may go on with impunity.

[Various authors have published undoubted cases

of septic poisoning of the mother from decomposition of the foetus, although the waters had not ruptured. Dr. Fordyce Barker, in his work on *Puerperal Diseases*, relates two instances as occurring in his practice.—*Rep.*

'Choc foetal' is evidently a movement of the foetus, but of its exact nature the author is ignorant. It is only discoverable by aid of the stethoscope, and, when once heard, although a very delicate sign, it is a sure indication of pregnancy. The following precautions are necessary to catch this movement, which strikes the ear to be a double sensation, a cross between a jerk (choc) and a 'bruit brusque,' but of extreme lightness (*légereté*), giving the impression that it is of a semi-tactile and semi-auditory nature. It is entirely distinct from all other sounds or sensations perceptible in the abdomen. The stethoscope has to be placed perpendicularly on the most prominent part of the tumour, and carefully poised until the ear is brought to bear on it, care being taken that the foot-piece lies flat on the abdominal walls. Pressure is now gently made with the head, so as to press the abdominal walls slightly against the uterine, but no further. At times one has to grope about to catch it, as with a specimen under the microscope. To educate the ear, it is better to study it between the fifth and sixth month of gestation, as the sensation is much more perceptible, but duller, 'brusque soubresaut.' Whenever there is doubt respecting a pregnancy, a decided answer should never be given, as in all obscure cases time is the best means of diagnosis.

AWATER AND MARTIN ON HYSTEROTOMY.—At the meeting of the Gynæcological Society of Berlin, on March 17 (*Berliner Klinische Wochenschrift*), Herr Awater read a paper, in which he advocated the bloody (*blutige*) dilatation of the cervical canal in preference to the use of sponge-tents, on account of (1) the difficulty in introducing them in extremely anteverted uteri; (2) the uncertainty of the times during which they should be left in; (3) the ease with which inflammations may be sometimes set up.

Dr. E. Martin stated during the discussion that ensued, that he had performed hysterotomy in 300 cases. The incision rapidly healed if the wound were not kept open by sponge-tents, which he invariably did. If there were much hæmorrhage, a plug of cotton-wool, dipped in liquor ferri, was introduced. He, as a rule, kept the sponge-tents twenty-four hours in the canal. An offensive odour arose most frequently, and was of a very intense character, when there was antecedent endometritis or chronic colpitis. He had never seen infection occur after their use that he could fairly assign to the tents. Parametritis was certainly to be attributed to the constitutional diathesis of the patient. In pregnant women the application of the tents was attended with much danger; perhaps it was on account of the larger size of the vessels. Certain cautions should never be neglected, such as disinfecting injections; and tents with smooth surfaces should always be chosen, as they did not expand so rapidly, and also abraded the parts less on their introduction. The effects of the laminaria tents were more transient, produced the same offensive discharges, and one fatal case of parametritis and perimetritis had occurred through their use. The general feeling of the society was that they were not particularly dangerous.

MILNE ON OCCASIONAL ARRESTING AND DISCUTIENT INFLUENCE OF PREGNANCY OVER PELVIC ABDOMINAL TUMOURS.—Dr. Alexander Milne read a paper on the subject before the Obstetrical Society of Edinburgh, on May 13, 1874, illustrating it by three cases (*Edinburgh Medical Journal*, August, 1874). He combats the view that has been held by most authorities, that pregnancy is favourable to the growth of cysts, exciting inflammation, or causing adhesions, or leading to suppuration, and that women with cystic ovaries should either not marry, or, if married, should refrain from intercourse. He relates three cases, showing that it had the most beneficial effect in causing complete absorption of the ovarian cyst.

Case 1.—A single lady consulted him previously to marriage, in whom he discovered in the right utero-rectal fossa an unilocular ovarian cyst, about the size of an orange. About the end of the fourth month of pregnancy, she was seized with sharp pains over the abdomen, and was exceedingly prostrate when seen, rejecting all food. Pain was relieved by opium, and the vomiting ceased in a couple of days. She was delivered at full time with a healthy child; and has had two children since. The tumour quite disappeared. [It is not stated when the cyst disappeared, whether before or after her first confinement or one of the subsequent labours.—*Rep.*]

Case 2.—A married woman, mother of three children. When in labour with her fourth child, there was found to be a large elastic tumour in Douglas's pouch; it was pushed above the brim, and the delivery was rapidly and safely accomplished. A couple of years afterwards she was again brought to bed; this time the tumour came down as before, but was much smaller. This year she gave birth to a child; the cyst was to be felt, but so much diminished in size that it required no interference.

Case 3.—This case was somewhat similar to the last. The patient was a multipara. The tumour could not be returned, and had to be delivered by turning twelve hours after parturition. There were intense abdominal pain and other symptoms of peritonitis. The woman recovered. Dr. Milne had not seen her since, to make any examination as to whether the tumour had diminished or not, but he believed such to have been the case.

These tumours were all diagnosed as unilocular ovarian cysts, and were discussed, the writer believes, through the pressure of the gravid uterus, acting similarly to the effect produced by external bandaging. Instead of matrimony or intercourse being prohibited, it should be regarded as a remedial measure.

W. C. GRIGG, M.D.

SUCCESSFUL REMOVAL OF UTERUS AND BOTH OVARIES.—The *American Journal of Medical Science* for July quotes from a report from Sumter County, in the *Transactions of the Alabama Medical Association*, a case of the removal, for fibroid disease, of the entire uterus and both ovaries. In removing this mass, weighing over six pounds, the whole of the small intestine was lifted out of the abdomen to gain room. Five silk ligatures were applied to the arteries, cut close, and allowed to remain. The cavity and bowels being carefully sponged with tepid water, the incisions were closed with silver sutures, covered closely and tightly with bands of adhesive plaster. The operation was attended with severe shock, and followed by violent vomiting. During a paroxysm of retching a knuckle of intestine protruded

through the wound, and was slightly torn by a wire suture. The edges of the rent were fastened to the edges of the wound in the abdomen. Symptoms of pyæmia repeatedly occurred. On the tenth day clots and pus were discharged through an incision in the posterior vaginal wall. The incisions in the abdomen, except at the fistula, healed by first intention. The sutures were removed on the tenth day, but supporting plasters were longer used. This patient fully recovered. Attempts made to close the fistula reduced it to dimensions not practically troublesome. Three years afterwards the patient, a negress of thirty or forty years of age, was in perfect health, working daily. The reporters attributed the removal of the alarming symptoms of septic poisoning to calomel in purgative doses, although using beef-essence and stimulants.

SIMMONS ON THE ADMINISTRATION OF HYDRATE OF CHLORAL BY THE RECTUM IN THE VOMITING OF PREGNANCY.—Dr. D. B. Simmons, chief surgeon to Ken Hospital, Yokohama, Japan, reports (*New York Medical Record*, June 1, 1874) four cases of excessive vomiting of pregnancy, in which thirty-grain doses of chloral, morning and evening, administered in mucilage by the rectum, afforded marked relief. Should another opportunity offer, writes Dr. Simmons, for a trial of this plan of treatment, we have decided to commence with larger doses, being convinced that a decided impression, produced by the medicine at first, will require its repetition but two or three times to put an end to the disease, for the time at least. We believe that hydrate of chloral, administered in this manner, will relieve most cases of nervous or sympathetic vomiting, where there is no inflammation especially. Even in strangulated hernia, on theoretical grounds, it ought to act well, not only in checking the vomiting, but in producing relaxation. We should give it a trial also in cholera.

MISCELLANY.

DR. LUDWIG has been nominated Professor of Physiological and Pathological Chemistry in the University of Vienna.

A NEW PROVINCIAL COLLEGE.—We understand that arrangements are in progress for the establishment in Bristol of a College of Science and Literature, of which the Medical School, which has existed in that city for many years, shall form a department.

FEMALE ARMY-SURGEONS.—The Vienna *Medicinisch-Chirurgische Centralblatt* reports that the Committee of the Society for the care of the Sick and Wounded in War in St. Petersburg, has approved of a proposal for allowing women to perform the duties of military surgeons in the field and in stationary hospitals. To carry out the plan it is intended to institute courses of instruction for female army-surgeons (*Feldscheererinnen*) in the Russian universities.

THE FAMILY BONAPARTE.—Madame Letitia Rat-tazzi, one of the members of the family Bonaparte, has for some months been visiting the principal towns of Europe, to study the ways and means of establishing a hospital which shall be especially devoted to the treatment of cancer. As is well-known, several of the members of this family have succumbed to this terrible disease. The first deposit will be 150,000 francs, to which will be added a biennial prize of 5,000 francs for the best work on the subject, as well as a sum of 20,000 francs for him who shall describe the true cure for cancer.

RELICS OF THE PAST.—We learn from Brünn, the capital of Moravia, that some enormous skeletons of gigantic animals, presumably mammoths, have been found at a place called Bohonitz, in the environs of the city. The class to which the animals belong is determined by the discovery of a tooth of the mammoth similar to one found in the same neighbourhood in 1795, and preserved in the museum of Brünn.

AMBULANT HOSPITALS.—The continental press is much occupied at present with the utility and necessity of organising ambulant hospitals, like that which is proposed by the local directors of the Society for aid to the sick and wounded of the Government of Linibirsk. In a province in the south of Russia, a medical man is engaged for a modest sum furnished by the local directors of the society, to visit the villages in time of peace, to attend the sick gratis, and to send them to the nearest hospital if their disease requires long and special treatment. In time of war ambulant hospitals of the same kind could act in the rear of the active army, and it is to be supposed that if they were organised on a practical basis they would prove very useful to wounded or sick soldiers.

‘NOTHING NEW UNDER THE SUN.’—Doctor Mordtmann, of Constantinople, publishes in the *Gazette Médicale de l’Orient* some curious details he has discovered in some old Oriental chronicles, tending to show that the Siamese Twins, as well as the Sisters Milly and Christine, had prototypes in former times. According to these Byzantine chronicles, there came from Armenia to Constantinople in the year 744, a monster, consisting of two children born of one mother. These children were attached to one another at the epigastrium, so that they faced each other, the other parts of their bodies being regularly formed. During their sojourn in the Byzantine capital numbers flocked to see this monstrosity; but as the twins were superstitiously regarded by the ecclesiastical authorities as being of bad augury, they were expelled the city, to return again when a comparatively enlightened emperor ascended the throne of the Cæsars. One of these twins died, and the most skilful physicians endeavoured to divide the survivor from the corpse at the point of juncture, in the hope of saving his life. The operation, however, only served to prolong its duration for three days.

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The London Medical Record.

EDUCATIONAL NUMBER.

WEDNESDAY, SEPTEMBER 16, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

HOSPITAL STUDY.

Some of the Metropolitan medical schools give in their prospectuses advice to the students, as to the course which they should follow in attending lectures, and especially hospital practice. The order of attendance on lectures will, of course, be regulated according to the subjects on which the student has to be examined by the licensing boards; but the following suggestions as to the course of practical study, taken from the Guy's Hospital prospectus, will, we think, be an useful guide as to hospital work.

At the end of the first year, or early in the second winter session, the appointment of assistant-surgeon's clerk may be held with advantage, and the application of anatomy to surgery should be studied among the surgical out-patients.

As soon as the primary examination is passed, the duties of surgical ward clerk should be entered on, and the wards, *post mortem* room, and out-patient rooms constantly frequented.

The next appointment should be that of medical ward clerk; and at this time the elements of physical diagnosis should be learnt, every effort being made to train the eye, the hand, and the ear, as well as to learn how to use the various instruments of investigation. The knowledge before acquired of microscopical and of chemical manipulation will now be fully applied; and the subject of morbid anatomy should be studied as each case arises.

The appointment of clerk in the out-patients' room should follow. Cases of midwifery should be attended while following the lectures on that subject.

When these appointments have been held, those of assistant-surgeon's dresser and dresser in the surgery necessarily precede the higher appointments. Those of *post mortem* clerk, dental surgeon's dresser, etc., may also be held advantageously during the third year.

Every student who desires to obtain the greatest advantage from his position as a Guy's man should seek to hold at least one, and, if possible, each in succession, of the higher students' appointments, viz. those of clinical assistant, full dresser, and obstetric resident clerk.

Those gentlemen who intend to take a degree in the University of London must somewhat deviate from the above course. They should defer entering the hospital until they have matriculated. The first

year should be devoted to learning the rudiments of human anatomy, and attending the courses of chemistry, natural philosophy, comparative anatomy and botany, in preparation for the preliminary scientific examination. Special classes in each of these subjects are held and examination papers given.

After this examination has been passed, the second year should be devoted to anatomy, physiology, and the other subjects of the first M.B. examination, and only after passing this should the undergraduate take clinical appointments and enter on practical work in the wards.

REGULATIONS OF THE LICENSING BODIES.

Subjoined are abstracts of the regulations issued by the licensing bodies in England and Scotland. The limited amount of space at our disposal obliges us to give only those portions which are of special interest to present students. In several instances, special exemptions from portions of the examinations are made in the case of candidates who possess the diplomas or degrees, or who have part of the professional examinations, of other examining boards. We have arranged in a tabular form the regulations of the Colleges of Physicians and Surgeons in London, and of the Society of Apothecaries, presenting thereby a synopsis which, we believe, will be interesting and useful to a large proportion of students. In all cases, a preliminary examination in subjects of general education must be passed before the commencement of professional study.

UNIVERSITY OF OXFORD. MEDICINE.

The Degrees of Doctor and Bachelor of Medicine are granted by this University.

BACHELOR OF MEDICINE.—A student deciding to graduate in medicine must, after passing all the requisite examinations for the degree of B.A., spend two years in study prior to a scientific examination for the degree of Bachelor of Medicine, unless he shall have taken a first or second class in the natural science school, when he may go in at the first opportunity for the first M.B. examination. Two years after passing this examination, and after four years of professional and scientific study, he may go in for the second or practical examination for the M.B. degree. These four years of medical study may be spent either in or out of Oxford, in an approved medical school.

DOCTOR OF MEDICINE.—For the Degree of Doctor in Medicine, a dissertation has to be publicly read three years after taking the M.B. degree.

The medical examinations take place annually in Michaelmas Term.

Further information may be obtained from the Registrar of the University, or from the *Student's Handbook of Oxford*.

UNIVERSITY OF CAMBRIDGE.

This University confers the degrees of Bachelor of Medicine, Doctor of Medicine, and Master of Surgery.

BACHELOR OF MEDICINE.—A student proceeding to this degree must—(1) Reside in the University two-thirds of each of nine terms; (2) Pass the Previous Examination, which may be done in the first

or second terms of residence; (3) Pursue medical study for five years, unless he have obtained honours in the Mathematical, Classical, Moral Sciences, or Natural Sciences Tripos, in which case only four years are required. Of this time, he must spend six terms in medical study in the University after passing the Previous Examination; or if he have obtained honours in one of the above-mentioned Triposes, four terms. There are three examinations for the degree of Bachelor of Medicine; the examinations include chemical analysis, practical histology, the recognition and description of specimens (healthy, morbid, and microscopical), dissections, and the examination of patients. The subjects of the first examination are—(1) Mechanics and Hydrostatics; (2) Chemistry with Heat and Electricity; (3) Botany. (Students who have already passed with credit the examinations on these subjects on the Triposes, or for the B.A. degree, are not required to be again examined on them.) The student may present himself for this examination at any time after passing the Previous Examination. He must have attended one course of lectures on Chemistry, including manipulation, and one course on Botany. The subjects of the second examination are—(1) Elements of Comparative Anatomy (except for students who have passed with credit the examination in this subject in the Natural Science Tripos, and have obtained honours); (2) Human Anatomy and Physiology; (3) Pharmacology. The student must have completed two years of medical study, including the time of medical study required to be spent in the University. He must have attended hospital practice during one year, have dissected during one season, and have attended a course of lectures on each of the following subjects: (1) Elements of Comparative Anatomy; (2) Human Anatomy and Physiology; (3) Materia Medica and Pharmacy; (4) Pathology. The subjects of the third examination are—(1) Pathology and the Practice of Physic; (2) Clinical Medicine; (3) Medical Jurisprudence. The student must have completed the course of medical study, must have attended hospital practice during three years, and must have attended one course of lectures on each of the following subjects:—(1) Principles and Practice of Physic; (2) Clinical Medicine; (3) Clinical Surgery; (4) Medical Jurisprudence; (5) Midwifery. He must also have been clinical clerk for six months at least at a recognised hospital; or have, after attendance on hospital practice, attended to practical medicine in the special care of patients in a hospital, dispensary, or parochial union, under superintendence of a qualified practitioner, unless he himself be duly qualified. After these examinations have been passed, the candidate reads a thesis, composed in English by himself on some subject approved by the professor; the professor brings forward arguments or objections in English for the candidate to answer, and examines him *viva voce*.

DOCTOR OF MEDICINE.—This degree may be taken by a Bachelor of Medicine in the ninth term after inauguration. He must have been engaged five years in medical study, keep an Act similar to that for M.B., and write an extempore essay. A Master of Arts may proceed to the degree of M.D. in the twelfth term after his inauguration as M.A., without having taken the degree of M.B. He must pass the three examinations for M.B., and keep the Act for the M.D. degree.

MASTER OF SURGERY.—The subjects of the ex-

amination for this degree are—(1) Surgical Anatomy; (2) Pathology and the Principles and Practice of Surgery; (3) Clinical Surgery; (4) Midwifery. The candidate must have passed all the examinations for the degree of M.B., and must have attended the surgical practice of a hospital for three years; must have been house-surgeon or dresser for six months; and must have attended (1) a second course of lectures on Human Anatomy; (2) one course of lectures on the Principles and Practice of Surgery; (3) lectures on Clinical Surgery during one year; (4) ten cases of Midwifery; and (5) have dissected. The candidate must perform operations on the dead body, and examine patients in the hospital.

UNIVERSITY OF LONDON.

Degrees in Medicine and Surgery.

The following Degrees are granted by the University of London:—Bachelor of Medicine; Doctor of Medicine; Bachelor of Surgery; and Master of Surgery. The certificates in all cases must be transmitted to the registrar at least fourteen days before the commencement of the examination. The fee for each examination is five pounds. If a candidate withdraw or fail to pass either of the examinations, the fee is not returned; but he is admitted without further payment to *two* subsequent preliminary scientific, first M.B., second M.B., or B.S. examinations, or to *one* subsequent M.S. or M.D. examination.

BACHELOR OF MEDICINE.—A candidate for the degree of Bachelor of Medicine must—(1) Have passed the Matriculation Examination, or have taken a degree in Arts in one of the Universities of Sydney, Melbourne, Calcutta, or Madras (provided that Latin has been one of the subjects). (2) Have passed the Preliminary Scientific Examination (in Mechanics and Natural Philosophy, Inorganic Chemistry, Botany and Vegetable Physiology, and Zoology). (3) Have been engaged in professional studies, during four years subsequently to matriculation or graduation in Arts; one year, at least, of the four to have been spent in one or more of the recognised institutions or schools in the United Kingdom. Two examinations are required.

First M.B. Examination.—The candidate must have passed the Preliminary Scientific Examination at least one year previously, and must—(1) Have completed his nineteenth year; (2) Have been a student during two years at one or more of the recognised medical institutions or schools; and have attended lectures on each of the three following subjects: Descriptive and Surgical Anatomy; General Anatomy and Physiology; Comparative Anatomy; Pathological Anatomy; Materia Medica and Pharmacy; General Pathology; General Therapeutics; Forensic Medicine; Hygiene; Obstetric Medicine and Diseases peculiar to Women and Infants; Surgery; Medicine; (3) Have dissected during two winter sessions; (4) Have attended a course of Practical Chemistry; (5) Have attended to Practical Pharmacy, and of having acquired a practical knowledge of the preparation of medicines. Candidates are examined in Anatomy; Physiology; * Materia Medica, and Pharmaceutical Chemistry;

* Candidates may postpone the examination in Physiology until the first M.B. examination in the next or any subsequent year; but they cannot compete for honours on either occasion.

Organic Chemistry. Candidate, placed in the first division, may be examined for honours in (1) Anatomy, (2) Physiology, Histology, and Comparative Anatomy, and (3) Materia Medica and Pharmaceutical Chemistry, and Organic Chemistry. If sufficient merit be evinced, the candidate who distinguishes himself most in each of these divisions receives an exhibition of 40*l.* per annum for two years; and the first and second candidates in each subject receive each a gold medal of the value of 5*l.*

Second M.B. Examination.—No candidate is admitted to this examination within two academical years after passing the first examination. He must have subsequently attended a course of lectures on each of the two subjects for which he had not presented certificates at the first examination; have conducted at least twenty labours; have attended the Surgical and the Medical Practice of a recognised hospital or hospitals during two years, with Clinical Instruction and Lectures, and have subsequently attended to practical medicine, surgery, and midwifery, with special charge of patients, in a hospital, infirmary, dispensary, or parochial union during six months. He must have acquired proficiency in vaccination. He must also produce a certificate of moral character from a teacher in the last school or institution at which he has studied. Candidates are examined in General Pathology, General Therapeutics, and Hygiene; Surgery; Medicine; Midwifery; Forensic Medicine. The examinations include questions in surgical and medical anatomy, pathological anatomy, and pathological chemistry, and practical examinations of patients, preparations, operations, etc. A candidate who has been placed in the first division may be examined for honours in (1) Medicine, (2) Midwifery, and (3) Forensic Medicine. If sufficient merit be evinced, the candidate who distinguishes himself the most in medicine receives 50*l.* per annum for two years, with the style of University Scholar in Medicine; and the candidates who distinguish themselves the most in midwifery and in forensic medicine receive each 30*l.* per annum for two years, with the style of University Scholar in Obstetric Medicine and in Forensic Medicine. The first and second candidates in each of the preceding subjects each receive a gold medal, value 5*l.*

BACHELOR OF SURGERY.—The candidate must: 1. Have taken the degree of Bachelor of Medicine in this University; 2. Have attended a course of instruction in operative surgery, and have operated on the dead subject. The examinations are conducted by printed papers on surgical anatomy and surgical operations; by examination and report on cases of surgical patients; by performance of operations upon the dead subject; by application of surgical apparatus; and by *viva voce* interrogation. Any candidate who has been placed in the first division at the examination may be examined for honours. If sufficient merit be evinced, the candidate who distinguishes himself the most receives 50*l.* per annum for two years, with the Style of University Scholar in Surgery; and the first and second candidates each receive a gold medal, value 5*l.*

MASTER IN SURGERY.—The candidate must: 1. Have taken the degree of Bachelor of Surgery in this University; 2. Have attended subsequently—(a) to clinical or practical surgery during two years in a hospital or medical institution recognised by this University; (b) or to clinical or practical surgery during one year in a recognised hospital or medical institution, and have been engaged during three

years in the practice of his profession; (c) or have been engaged during five years in the practice of his profession. Candidates are examined in logic and moral philosophy, and in surgery. If sufficient merit be evinced, the candidate who distinguishes himself the most at this examination receives a gold medal of the value of 20*l.*

DOCTOR OF MEDICINE.—The candidate must produce certificates analogous to those required for candidates for the degree of Master in Surgery, but having special relation to medicine. The examination is conducted by printed papers and *viva voce* interrogation; and candidates are examined in Logic and Moral Philosophy, and in Medicine. If sufficient merit be evinced, the candidate who distinguishes himself the most receives a gold medal of the value of 20*l.*

UNIVERSITY OF DURHAM.

This University grants the degrees of Bachelor of Medicine, Doctor of Medicine, and Master in Surgery; also Licenses in Medicine and in Surgery.

LICENSE IN MEDICINE.—The candidate must be of the age of twenty-one years, and must, after registration, have spent four years in medical study at one or more of the schools recognised by the Licensing Bodies. One year at least must be spent at the College of Medicine at Newcastle-on-Tyne. There are two public examinations: the first, in Anatomy, Physiology, and Chemistry, after two years at least of medical study; the second, after four years at least of medical study.

BACHELOR OF MEDICINE.—The candidate must be of the standing of three terms at least as a Licentiate of Medicine, and of six years at least from the date of registration. He must have obtained a Degree in Arts of the University of Durham, or have passed the final examination for the Degree of Bachelor of Arts, or an equivalent to it. The candidate must write an essay on some medical subject, selected by himself and approved by the Professor of Medicine, and pass an examination thereon, including the collateral medical branches involved in the subject of the essay.

DOCTOR OF MEDICINE.—The candidate must be of the standing of three terms at least as a Bachelor of Medicine in the University, and of seven years from his registration or matriculation; and must have passed the examination for the degree of Doctor of Medicine, which is similar to that for the degree of Bachelor.

LICENSE IN SURGERY.—The regulations are similar to those for the License in Medicine; but the second examination is directed more particularly to Surgery, and may be passed at the same time with the final examination for a License in Medicine.

MASTER IN SURGERY.—The candidate must be a Licentiate in Surgery and in Medicine, and of the standing of six years at least from registration or matriculation, and of three terms at least from the date of the License in Surgery.—[In other respects, the regulations for this degree are analogous to those for that of Bachelor of Medicine.] The examination for this degree is directed chiefly to the Practice of Surgery.

Candidates for the Degrees of Master in Surgery, Bachelor of Medicine, and Doctor of Medicine must reside and pursue the Arts Course for three terms either in Durham or at Newcastle, in addition to the four years of medical study.

| ROYAL COLLEGE OF PHYSICIANS OF LONDON. | | | ROYAL COLLEGE OF SURGEONS OF ENGLAND. | | SOCIETY OF APOTHECARIES. |
|--|--|---|--|--|--|
| | MEMBERS. | LICENTIATES. | FELLOWS. | MEMBERS. | LICENTIATES. |
| AGE REQUIRED EVIDENCE OF PRELIMINARY EDUCATION BEFORE COMMENCEMENT OF PROFESSIONAL STUDY. | Twenty-five. A Degree in Arts of a recognised University, or evidence of having passed examinations equivalent to those for a Degree in Arts. | Twenty-one. Certificate of having passed examination in subjects of General Education recognised by the College. | Twenty-five. Degree in Arts of recognised University; or evidence of having passed an examination in Arts recognised by the College; or to pass an examination in English, Classics, and Mathematics by examiners of Royal College of Preceptors, under direction of College. | Twenty-one. Degrees in Arts of recognised University; or evidence of having passed an examination in Arts recognised by the College; or to pass an examination in English, Classics, and Mathematics by examiners of Royal College of Preceptors, under direction of College. | Twenty-one. Examination in Arts by the Society's examiners; or certificate of having passed an examination in Arts recognised by the Medical Council. |
| DURATION OF PROFESSIONAL STUDY; AND HOW TO BE OCCUPIED. | Five years, of which four must have been passed at a school or schools recognised by the College. | Four years, or not less than four winter and four summer sessions; at least three winter and two summer sessions at a recognised school or schools; and one winter and two summer sessions in attending the practice of a recognised Hospital or other institution, in receiving instruction as the pupil of a legally qualified practitioner holding a public appointment, or attending lectures on any subjects of professional study at a recognised place of instruction. | Six years; in the case of members of the College, two years in addition to the certificates for the diploma of member. | Four years, or not less than four winter and four summer sessions. To commence with attendance on the practice of a hospital or other recognised institution; instruction as the pupil of a legally qualified surgeon holding an appointment to a public institution; or attending lectures on Anatomy, Physiology, or Chemistry, by recognised lecturers. | Three winter and two summer sessions; three month's instruction in practical Pharmacy in a hospital or dispensary, or with a legally qualified practitioner. (Apprenticeship is no longer required.) |
| COURSES OF LECTURES, ETC., REQUIRED. <i>Anatomy and Dissections.</i> | Two winter sessions. | Two winter sessions. | Lectures during two winter sessions; dissections during three winter sessions. | Lectures during two winter sessions; dissections during two winter sessions. | Two winter sessions. |
| <i>Physiology</i> | Two winter sessions. | Two winter sessions. | Lectures one winter session; and Practical Physiology another session. | Lectures one winter session; and Practical Physiology another session. | Two winter sessions. |

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| <i>Chemistry</i> | Six months. | One course. | First winter session. |
| <i>Practical Chemistry</i> | Three months. | Three months. | First summer session. |
| <i>Materia Medica</i> | Three months. | Three months. | Three months. |
| <i>Practical Pharmacy</i> | Three months. | Not required. | First summer session. |
| <i>Botany</i> | Three months. | Lectures three months ; and demonstrations in <i>post mortem</i> room during attendance on surgical hospital practice. | Third winter session. |
| <i>Morbid Anatomy</i> | Six months ; including instruction in hospital <i>post mortem</i> room. | One course. | Second winter session. |
| <i>Medicine</i> | Two winter sessions. | One winter session. | Not required. |
| <i>Surgery</i> | Two winter sessions. | Six months. | Second summer session ; and twenty cases of labour. |
| <i>Practical Surgery</i> | Not required. | Three months ; and not less than ten labours. | |
| <i>Midwifery and Diseases of Women.</i> | Three months. | Three months. | Second summer session. |
| <i>Forensic Medicine</i> | Medical and surgical practice, three winter and two summer sessions. | Surgical practice, three winter and two summer sessions ; Medical practice, one winter and one summer session. | Medical practice, beginning with second winter session to end of period of study. |
| <i>Hospital Practice</i> | | One winter and one summer session. | Third winter session. |
| <i>Clinical Medicine</i> | Three winter and three summer sessions, after second winter session. | Not required. | |
| <i>Clinical Surgery</i> | Two winter and two summer sessions, after second winter session. | Two winter and two summer sessions ; after first winter session of practice. Observation of patients at least twice a week for three months. | Not required. |
| <i>Clinical Study of Diseases of Women</i> | Six months. | Not stated. | Not stated. |
| <i>Hospital Appointments</i> | Clinical clerk, three months ; dresser three months. | Dresser ; or (after a year of study) charge of patients in a recognised institution, under superintendence of a surgeon, for six months. Instruction and proficiency in Vaccination. | Clinical clerk, six weeks at least. |
| <i>Other Certificates</i> | Instruction and proficiency in Vaccination. Moral character. | Instruction and proficiency in Vaccination. Comparative Anatomy, one course. | Having been examined at class-examinations. Instruction in vaccination. Moral conduct. |

TABULAR VIEW OF THE REGULATIONS OF THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS AND THE SOCIETY OF APOTHECARIES—CONTINUED.

| | ROYAL COLLEGE OF PHYSICIANS OF LONDON. | | ROYAL COLLEGE OF SURGEONS OF ENGLAND. | | SOCIETY OF APOTHECARIES. |
|--|--|---|--|---|---|
| | MEMBERS. | LICENTIATES. | FELLOWS. | MEMBERS. | LICENTIATES. |
| NUMBER OF EXAMINATIONS. FIRST EXAMINATION; WHEN IT MAY BE PASSED; SUBJECTS; DATES WHEN EXAMINATIONS ARE HELD. | Three. After end of second winter session; in Anatomy and Physiology. | Two. After end of second winter session; in Anatomy and Physiology; May and first Mondays of Oct. and Dec. 1874; and Feb., April, July, Oct., and Dec., 1875. | Two. After third winter session; in Anatomy and Physiology; May and November, and such other times as Council may appoint. | Two. After second winter session; in Anatomy and Physiology; January, April, May, July, November. | Two. After second winter session; in the British Pharmacopœia, Latin Prescriptions, Anatomy and Physiology, General and Practical Chemistry, Botany, and Materia Medica. Every Wed. and Thurs. |
| SECOND EXAMINATION; AT WHAT PERIOD IT MAY BE PASSED; SUBJECTS; DATES WHEN EXAMINATIONS ARE HELD. | After four years of professional study; in Surgical Anatomy and Surgery; Materia Medica; Chemistry in its application to Pathology, Pharmacy, and Toxicology; Midwifery and Diseases of Women; Examination of Surgical Patients. | After four years of professional study; in Medical and Surgical Anatomy, Surgery, Materia Medica, Chemistry applied to Pathology, Pharmacy, and Toxicology; Midwifery and Diseases of Women, Medicine, and Principles of Public Health; Examination of Medical and Surgical Patients. Second Mondays in Oct. and Dec. 1874, and Feb., April, July, October, and Nov., 1875. | After six years of professional study; in Pathology, Therapeutics, Surgery, and Medicine (Medicine not required from candidates holding approved diplomas, degrees, or licenses, or from those intending to obtain a medical qualification; in the latter case, the diploma of the College is not issued until proof of having passed the medical examination is produced). May and Nov., and such other times as Council may appoint. | After end of fourth year of professional education; in Surgical Anatomy, Surgery, and Medicine (Medicine not required from candidates holding approved diplomas, degrees, or licenses, or from those intending to obtain a medical qualification; in the latter case, the diploma of the College is not issued until proof of having passed the medical examination is produced). Jan., April, May, July, November. | At end of medical studies, in Medicine, Pathology, Therapeutics, Midwifery and Diseases of Women and Children, Forensic Medicine and Toxicology. Every Wednesday and Thursday. |
| THIRD EXAMINATION; AT WHAT PERIOD IT MAY BE PASSED; SUBJECTS; DATES WHEN HELD. | After completion of required course of study in Medical Anatomy, Medicine, including Public Health and Psychology; Examination of Medical Patients. | | | | |

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| FEES PAYABLE . . . | 3 <i>l.</i> 10 <i>s.</i> | 15 <i>l.</i> 15 <i>s.</i> ; 5 <i>l.</i> 5 <i>s.</i> at first examination, not returned in case of rejection, but candidate admitted to one subsequent first examination without additional fee. After rejection at second examination, fee returned, minus 3 <i>l.</i> 3 <i>s.</i> | After rejection at first examination, not again admitted until end of three months; after second examination, not till end of six months. Evidence of professional study during interval required in both cases. | Candidates who have passed examinations in Anatomy and Physiology of other licensing body; who have obtained Degree in Medicine or in Surgery at a recognised university; who have passed examination in Surgery at a College of Surgeons; or who have obtained Degrees in Medicine; or who are above forty years of age. | Candidates who have degrees of B.A. or M.A. of an University in the United Kingdom are required to study for <i>five</i> years only. Members of College, after eight years, admitted to examination. | Candidates who have studied in Scotland or in Ireland or at recognised Foreign or Colonial Universities, members or licentiates of the other Colleges of Surgeons in United Kingdom, and Graduates in Medicine or Surgery of a recognised University. | Graduates in Medicine of British Universities; Licentiates and members of Colleges of Physicians and Surgeons in United Kingdom or of Apothecaries' Hall in Ireland; candidates who have passed the first professional examination of other boards; candidates apprenticed before August 1, 1858, or who commenced hospital attendance on or before October 1, 1861. |
| REJECTED DATES. | CANDIDATES EXEMPTED FROM CERTAIN PORTIONS OF THE EXAMINATIONS OR ADMITTED UNDER SPECIAL REGULATIONS. | After rejection at first examination, not admitted until end of three months; at second examination, not till end of six months. In both cases certificates of professional study in interval required. After rejection at third examination, not re-admitted (except by special permission) till end of one year. | After rejection at primary examination, candidate must dissect for three months; after second examination, must attend Surgical Hospital Practice and Lectures on Clinical Surgery for six months. | After rejection at first examination, candidate cannot be again admitted till after three months; after examination for licence not till after six months. | After rejection at first examination, candidate cannot be again admitted till after three months; after examination for licence not till after six months. | After rejection at first examination, candidate cannot be again admitted till after three months; after examination for licence not till after six months. | Certificate of qualification to practice, 6 <i>l.</i> 6 <i>s.</i> ; half retained in case of rejection and accounted for at subsequent examination. First examination, 3 <i>l.</i> 3 <i>s.</i> , retained in case of rejection and accounted for subsequently. |

ROYAL COLLEGES OF PHYSICIANS AND OF SURGEONS OF EDINBURGH.

DOUBLE QUALIFICATION IN MEDICINE AND IN SURGERY.

These colleges give their separate diplomas in medicine and surgery, under conditions generally similar to those described below. Particulars may be obtained on application to the colleges. They have also made arrangements by which, after one series of examinations, the student may obtain the diplomas of both colleges, and register two qualifications—Licentiates of the Royal College of Physicians of Edinburgh, and Licentiate of the Royal College of Surgeons of Edinburgh. Every candidate must have studied in an University, or in an established School of Medicine, or in a recognised Provincial School. Candidates must have been engaged during four years after examination in general education, in not less than four winter sessions', or three winter and two summer sessions', attendance at a recognised medical school. Candidates must have attended the following course of lectures: Anatomy, two courses of six months each, and Practical Anatomy, twelve months; or Anatomy, one course of six months, and Practical Anatomy, twelve months; or Anatomy, one course of six months, and Practical Anatomy, eighteen months; Physiology, not less than fifty lectures; Chemistry, Practice of Medicine, Clinical Medicine; Medicine (a third course, either Practice or Clinical), Principles and Practice of Surgery, Clinical Surgery, Surgery (a third course, either Principles and Practice or Clinical Surgery), each six months; Practical or Analytical Chemistry, Materia Medica, Midwifery, and Diseases of Women and Children, Medical Jurisprudence, and Pathological Anatomy, each three months. He must also (a) have attended at least six cases of labour; (b) have attended, for three months, instruction in Practical Pharmacy; (c) have attended, for twenty-four months, a public General Hospital, containing at least eighty patients; (d) have attended, for six months, the practice of a public Dispensary specially recognised, or have been engaged for six months as assistant to a registered practitioner; (e) have been instructed in vaccination. Students are recommended to attend lectures on Ophthalmic and Mental Diseases, and on Natural History and Comparative Anatomy; and to obtain practical instruction in the use of the Microscope. Candidates for the Diplomas must have passed the examination in General Education, and have had their names inscribed in the General Medical Council's Register of Medical Students. Certificates of having passed the examinations in General Education, conducted by bodies recognised by the General Medical Council, will be accepted as equivalent. Candidates for the double qualification are subjected to two professional examinations. The first examination embraces Anatomy, Physiology, and Chemistry; and takes place not sooner than the end of the second winter session. The sum of 6*l.* must be paid for this examination, and will be considered as paid to account for the entire fee of 16*l.* payable for the two Diplomas. In the case of a candidate being unsuccessful at this examination, 4*l.* will be returned to him. The second examination embraces Medicine, Surgery, and Surgical Anatomy, Midwifery, Pathological Anatomy, Materia Medica and Pharmacy, and Medical Jurisprudence; and takes place after the termination of the

winter session of the last year of study, and not until four years after the examination in general education; the fee for this examination is 10*l.* In case of a candidate being unsuccessful at this examination, 3*l.* will be returned to him. Candidates who have passed the first professional examination in Anatomy, Physiology, and Chemistry, at any of the Licensing Boards recognised by the Medical Act, will be admissible to the second professional examination on producing certificates of the whole course of study prescribed, and of having passed their preliminary and first professional examinations, 16*l.* In addition to written and oral examinations, all candidates are subjected to a practical Clinical Examination in Medicine and Surgery. No candidate is admissible to examination who has been rejected by any other Licensing Board within the three preceding months. Communications from candidates to be addressed to Dr. Gairdner, Inspector and Treasurer of the Double Qualification, at 45, Northumberland Street, Edinburgh. The following will be the periods of examination for the Double Qualification of the Royal Colleges of Physicians and Surgeons of Edinburgh, for the year 1874-5:—*Preliminary Examination in General Education*, October 20 and 21, 1874, April 20 and 21, and July 24 and 25, 1875. *First Professional Examinations*.—Tuesdays, November 3, 1874; February 2, April 13, May 4, July 20, and August 3, 1875. *Second Professional Examinations*. These will take place immediately after the conclusion of the first professional examinations. In no case will they be begun on an earlier day than the Thursday of any period.

Conjoint examinations are also held, and double qualifications granted, under similar regulations, by the Royal College of Physicians in Edinburgh and the Faculty of Physicians and Surgeons of Glasgow.

THE UNIVERSITIES OF SCOTLAND.

The four Scottish Universities—Edinburgh, Glasgow, Aberdeen, and St. Andrews, confer each the degrees of Bachelor of Medicine, Master in Surgery, and Doctor of Medicine. The degree of Master in Surgery is not conferred on any one who does not obtain the degree of Bachelor of Medicine.

The regulations for the M.B. degree as to age, preliminary education, and curriculum of study, are in their general character similar to those for the conjoint diplomas of the Royal Colleges of Physicians and Surgeons in Edinburgh; but one of the five years of medical study required must have been spent in the University the degree of which is sought. The Universities of Aberdeen and St. Andrews require an inaugural dissertation to be presented composed by the candidate for the degree of M.B.; but at Edinburgh and Glasgow this is not required until the degree of M.D., is taken.

Degree of Doctor in Medicine.—A candidate for the degree of doctor of medicine must have obtained the degree of bachelor of medicine, be twenty-four years of age, and have been engaged, subsequently to having received the degree of M.B., for two years in attendance on an hospital, or in the military or naval medical service, or in medical or surgical practice. The degree of doctor is not conferred on any person unless he be a graduate in arts, or unless he shall, before or at the time of his obtaining the degree of bachelor of medicine, or

within three years thereafter, have passed a satisfactory examination in Greek, and in logic or moral philosophy, and in one at least of the following subjects, namely, French, German, higher mathematics, natural philosophy, and natural history. As above-mentioned, the Universities of Edinburgh and Glasgow require a thesis to be presented; and the regulations of the Edinburgh University state that 'no thesis will be approved by the medical faculty which does not contain either the results of original observations in practical medicine, surgery, midwifery, or some of the sciences embraced in the curriculum for the bachelor's degree; or else a full digest and critical exposition of the opinions and researches of others on the subject selected by the candidate, accompanied by precise references to the publications quoted, so that due verification may be facilitated.' Gold medals are awarded by the University of Edinburgh to the authors of the best thesis, if deemed worthy.

METROPOLITAN MEDICAL SCHOOLS.

The winter session will commence in the London Medical Schools on October 1; when introductory addresses will be given, at Charing Cross Hospital by Dr. Douglas Powell, at 4 P.M.; at St. George's Hospital, by Dr. Dickinson, at 4 P.M.; at Guy's Hospital, by Sir William Gull, Bart., M.D., F.R.S., at 2 P.M.; at King's College, by Dr. Ferrier, at 4 P.M.; at the London Hospital, by Dr. S. Fenwick, at 3 P.M.; at St. Mary's Hospital, by Mr. Owen, at 3.30 P.M.; at the Middlesex Hospital, by Mr. A. Clark, at 3 P.M.; at St. Thomas's Hospital, by Mr. Mac Cormac, at 2 P.M.; at University College, by Dr. Roberts, at 3 P.M.; and at the Westminster Hospital, by Dr. Potter, at 8 P.M. No introductory lecture is given at St. Bartholomew's Hospital.

ST. BARTHOLOMEW'S HOSPITAL. — *Consulting Physicians*.—Sir G. Burrows, Bart., D.C.L., F.R.S. Dr. Farre. *Consulting Surgeon*.—Sir J. Paget, Bart., D.C.L., F.R.S. *Physicians*.—Dr. Black, Monday, Tuesday, and Thursday, 1. Dr. Harris, Tuesday, Thursday, and Saturday, 1.30. Dr. Andrew, daily except Wednesday, 1.30. Dr. Southey, Monday, Wednesday, Thursday, and Saturday, 1.30. *Surgeons*.—Mr. Holden, Tuesday, Friday, and Saturday, 1.30. Mr. Savory, Monday, 1; remaining days of week, 1.30. Mr. Callender and Mr. Thomas Smith, daily, 1.30. *Physician-Accoucheur*.—Dr. Greenhalgh, Thursday, 1.30. *Out-patients*, Saturday, 9. *Ophthalmic Surgeons*.—Mr. Power, Tuesday and Thursday, 1.30. Mr. Vernon, Thursday and Saturday, 1.30. *Assistant Physicians*.—Dr. Church, Tuesday and Friday, 11. Dr. Gee, Wednesday and Saturday, 11. Dr. Duckworth, Monday and Thursday, 11. Dr. Hensley. *Assistant-Surgeons*.—Mr. Willett, Wednesday and Saturday, 12.30. Mr. Langton, Tuesday and Friday, 12.30. Mr. Morrant Baker, Monday and Thursday, 12.30. Mr. Marsh. *Diseases of Skin*.—Dr. Duckworth, Friday, 1.30. *Orthopædic Surgery*.—Mr. Willett, Friday, 12.30. *Diseases of Ear*.—Mr. Langton, Friday, 2.30. *Dental Surgeon*.—Mr. Coleman, Friday, 9. *Casualty Physicians*.—Dr. Hollis, Dr. Wickham Legg, Dr. Brunton, F.R.S. *Lectures: Winter Session*.—Dr. Black and Dr. Andrew, Monday, Tuesday, and Thursday, 3.30. Fee: one course, 5*l.* 5*s.*; unlimited 7*l.* 7*s.* *Surgery*.—Mr. Savory, F.R.S. and Mr. Callender, F.R.S., Wednesday and Thursday,

2.30, Saturday, 9.30 A.M. Fee: one course, 5*l.* 5*s.*, unlimited, 7*l.* 7*s.* *Practical Surgery*.—Demonstrator, Mr. Willett, Monday, Wednesday, and Friday, 2.30. One course 5*l.* 5*s.*, unlimited, 7*l.* 7*s.* *Operative Surgery*.—One course, 4*l.* 4*s.* *Descriptive and Surgical Anatomy*.—Mr. T. Smith and Mr. Langton, Tuesday, Wednesday, Thursday, and Friday, 9 A.M. One course, 7*l.* 7*s.*; unlimited, 10*l.* 10*s.* *Practical Anatomy*.—Under superintendence of lecturers on Anatomy and Physiology. Demonstrators, Mr. Cumberbatch, Mr. Furner, Mr. Walsham. Assistant Demonstrator, Mr. Cripps, 10.15 to 4 daily. Dissecting rooms are open from 7 A.M. to 4 P.M. *General Anatomy and Physiology*.—Mr. Morrant Baker, Monday, Tuesday, and Friday 2.30. One course, 7*l.* 7*s.*; unlimited, 10*l.* 10*s.* *Practical Physiology*.—Mr. Symons, in winter, Monday, Thursday, Friday, 10; Tuesday, 2.30; in summer, Monday, Tuesday, Friday, 11. Fee: one course, 5*l.* 5*s.*; unlimited, 7*l.* 7*s.* *General Histology*.—(Part of Course of Practical Physiology) Dr. Klein, Monday, 2.30. One course, 2*l.* 2*s.* *Chemistry*.—Dr. Russell, F.R.S., Monday, Wednesday, Friday, 10. Fee: one course, 5*l.* 5*s.*, unlimited, 7*l.* 7*s.* *Hygiene*.—Dr. Southey, Friday, 3.30, in January and February. *Dental Surgery and Pathology*.—Mr. Coleman, Friday, 10.30, in October, November, and December: one course, 2*l.* 2*s.*; unlimited, 3*l.* 3*s.* *Materia Medica and Therapeutics*.—Dr. Farre and Dr. Lauder Brunton, F.R.S., Tuesday, Thursday, and Saturday, 10; Wednesday, 11. Fee: one course, 5*l.* 5*s.*; unlimited, 6*l.* 6*s.* *Rotary and Vegetable Physiology*.—Rev. G. Henslow, Monday, Wednesday, and Friday, 10. Fee: one course, 3*l.* 3*s.*; unlimited, 4*l.* 4*s.* *Forensic Medicine*.—Dr. Southey, Tuesday, Thursday, and Saturday, 9. Fee: one course, 3*l.* 3*s.*; unlimited, 4*l.* 4*s.* *Midwifery and Diseases of Women and Children*.—Dr. Greenhalgh, Tuesday, Wednesday, Friday, and Saturday, 8.30 A.M. Fee: one course, 5*l.* 5*s.*; unlimited, 6*l.* 6*s.* *Ophthalmic Medicine and Surgery*.—Mr. H. Power, Tuesday and Wednesday, 12.45. One course, 2*l.* 2*s.*; unlimited, 3*l.* 3*s.* *Ophthalmic Demonstrations*.—Mr. Vernon (in winter), Wednesday, 2. *Comparative Anatomy*.—Dr. Church, Monday and Thursday, 11. One course, 2*l.* 2*s.*; unlimited, 3*l.* 3*s.* *Pathological Anatomy*.—Dr. Gee, Wednesday, 9.30. One course, 2*l.* 2*s.*; unlimited, 3*l.* 3*s.* *Practical Chemistry*.—Dr. Russell, F.R.S. Monday, Wednesday, and Friday, 11. One course, 2*l.* 2*s.* *Psychological Medicine*.—Dr. Clay Shaw, Thursday, 12. One course, 2*l.* 2*s.*; unlimited, 3*l.* 3*s.* *Clinical Lectures by the Physicians*: by Sir James Paget (Consulting Surgeon) and the Surgeons, at times to be arranged in the course of the session. Medical Tutor and Warden of the College, Dr. Norman Moore; Medical Registrar, Dr. Hollis; Surgical Registrars, Mr. Butlin and Mr. Milner. General Fee for attendance on Lectures and Hospital Practice, 105*l.* 5*s.*, payable in the following instalments: First Winter, 36*l.* 15*s.*; First Summer, 36*l.* 15*s.* Second Winter, 36*l.* 15*s.*, or a single payment of 105*l.* Payment in either of these ways entitles the student to a perpetual ticket. Fees for Hospital Practice (Medical): three months, 8*l.* 8*s.*; six months, 12*l.* 12*s.*; two years, 18*l.* 18*s.*; unlimited, 26*l.* 5*s.* Surgical: three months, 10*l.* 10*s.*; six months, 15*l.* 15*s.*; twelve months, 21*l.*; Unlimited, 26*l.* 5*s.* House-Physicianships and House-Surgeoncies: twelve months, 26*l.* 5*s.* (These officers receive each a salary of 25*l.* Dresserships: three

months, 12*l.* 12*s.*; six months, 18*l.* 18*s.*; twelve months, 26*l.* 5*s.*

The hospital contains 710 beds, of which 227 are for medical and 322 for surgical cases. The anatomical museum contains carefully selected specimens of human, and of comparative, and of pathological anatomy, and also numerous models, casts, diagrams, and drawings. The anatomical museum, and the museums of materia medica and of botany are open daily from 10 to 4. The library contains all the standard works of medical, surgical, and the allied sciences, with duplicate copies of books in most general use, the chief medical and other periodicals, and a valuable collection of works on religion, history, and general literature.

The reading room is open for the use of students every day—during the winter from 10 to 5; during the summer from 9 to 5; during the vacations, from 10 to 2.30. The subscription for one year is 1*l.* 1*s.*; for four years, 2*l.* 2*s.*

CHARING CROSS HOSPITAL.—*Consulting Surgeon*, Mr. Hancock. *Physicians*.—Dr. A. J. Pollock; Dr. A. Silver; Dr. T. Henry Green. *Assistant-Physicians*.—Dr. Douglas Powell; Dr. G. V. Poore; Dr. J. Mitchell Bruce; Dr. J. P. Irvine. *Surgeons*.—Mr. E. Canton; Mr. F. Hird; Mr. R. Barwell. *Assistant-Surgeons*.—Mr. E. Bellamy; Mr. Fairlie Clarke; Mr. J. A. Bloxam. *Physician Accoucheur*. Dr. J. Watt Black. *Physician for Skin-Diseases*. Dr. E. Sparks, M.B., M.A. *Dental Surgeon*.—Mr. J. Fairbank. *Chloroformist*.—Mr. F. W. Braine, F.R.C.S. *Medical Registrar*.—Dr. J. M. Bruce. *Surgical Registrar*.—Mr. M. McHardy. *Lectures*: Anatomy, Mr. Bellamy, Monday, Wednesday, Friday, 9; Thursday, 3. Physiology, Dr. Silver, Monday, Tuesday, Wednesday, Friday, 3.30. Medicine, Dr. Pollock, Monday, Wednesday, Friday, 12.30. Surgery, Mr. Canton, Tuesday, Thursday, Saturday, 9. Chemistry, Mr. Heaton, Monday, Thursday, Friday, 11. Dissections, Dr. Cantlie, daily, 10. Materia Medica, Dr. Powell, Tuesday, Thursday, Saturday, 9.45. Midwifery, Dr. Black, Monday, Tuesday, Wednesday, Thursday, 3. Forensic Medicine, Dr. Poore, Monday, Wednesday, Friday, 9. Pathology, Dr. Green, Tuesday, Friday, 3; Wednesday, 4. Botany, Dr. Dowson, Tuesday, Thursday, Saturday, 11. Practical Chemistry, Mr. Heaton, Monday, Friday, 10 to 1. Comparative Anatomy, Mr. Garrod, Tuesday, Friday, 4. Public Health, Mr. Heaton, Dr. Poore, and Mr. Eassie, Tuesday, Thursday, Friday, 2. Psychological Medicine, Dr. Hunt, Monday, 12 (summer). Dental Surgery, Mr. Fairbank, Mon., Wed., Fri., 9.30. Auscultation, Dr. Green, Sat. Case Taking, Dr. Powell. Diseases of Children, Dr. Bruce, Wed. and Sat. Practical Histology, Dr. Bruce, in winter. Laryngoscopic Demonstrations, Dr. Sparks, Thurs. in Oct., Wed. in Dec. Electro-Therapeutics, Dr. Poore, Tues. and Fri. in Feb. Aural Surgery, Mr. Bloxam, Oct. Nov. Dec. Practical Surgery (*in summer*).—(a) Operations, Mr. Bellamy, Thurs.; (b) Bandaging, Mr. F. Clarke, Thurs.; (c) Pathology, Mr. Bloxam, Tues. Skin Diseases, Dr. Sparks, Thurs. Demonstrations of Bones and Ligaments, Dr. Cantlie, daily, except Sat. Morbid Histology, Dr. Bruce. Operative Surgery, Mr. Bellamy, daily in summer. The fees for the classes are mostly different for 'matriculated' and 'non-matriculated' students. The matriculation fee is 2*l.* 2*s.*; and students who have paid this fee are not charged for

attendance on several of the departments of practical study. *Fees for Hospital*.—*Practice* for the full period required by the University of London and the metropolitan licensing bodies, including clinical courses, 31*l.* 10*s.* Non-Matriculated students pay the following fees:—Either medical or surgical practice, three months, 6*l.* 6*s.*; six months, 10*l.* 10*s.*; twelve months, 15*l.* 15*s.*; full period, 21*l.* Both medical and surgical practice, three months, 10*l.* 10*s.*; six months, 15*l.* 15*s.*; twelve months, 21*l.*; full period, 31*l.* 10*s.* For a longer period, 5*l.* 5*s.* for each additional winter, and 3*l.* 3*s.* for each additional summer session.

ST. GEORGE'S HOSPITAL.—*Consulting Physicians*.—Dr. Wilson, Dr. Pitman. *Consulting Surgeons*.—Mr. Caesar Hawkins, F.R.S., Mr. Tatum. *Physicians*.—Dr. Barclay and Dr. Ogle, Monday, Friday, at 1 P.M.; Dr. Wadham and Dr. Dickinson, Tuesday, Saturday, 1 P.M. *Assistant-Physicians*.—Dr. Whipham, Monday, Friday, 12 A.M.; Dr. Cavafy, Tuesday, Saturday, 12 A.M. *Physician Accoucheur*.—Dr. John Clarke, in-patients, Tuesday, Saturday, 1 P.M.; out-patients, Thursday, 12 A.M. *Assistant-Physician Accoucheur*.—Dr. R. J. Lee, in-patients, Tuesday, Saturday, 1 P.M.; out-patients, Thursday, 12 A.M. *Surgeons*.—Mr. Prescott Hewett, F.R.S., and Mr. Pollock, Monday, Friday, 1 P.M.; Mr. Henry Lee Mr. Holmes, Tuesday, Saturday, 1 P.M.; *Assistant-Surgeons*.—Mr. Rouse, Tuesday, Saturday, 12 A.M.; Mr. Pick, Monday, Friday, 12 A.M. *Ophthalmic Surgeon*.—Mr. Brudenell Carter, Wednesday, Saturday, 2 P.M. *Aural Surgeon*.—Mr. Dalby, Tuesday, 2 P.M. *Dentist*.—Mr. Vasey, Tuesday, Saturday, 9 A.M.; Thursday, 1 P.M. *Orthopaedic Outpatients*.—Mr. Pick, Wednesday, 2 P.M. *Diseases of Skin*.—Dr. Whipham, Thursday, 2 P.M.

Lectures.—Descriptive and Surgical Anatomy.—Mr. Rouse, Monday, Wednesday, Friday, 3 P.M. One course, 6*l.* 6*s.*; perpetual, 7*l.* 7*s.* Practical Anatomy, Demonstrator, Mr. Frost; Assistant-Demonstrator, Mr. Dunbar. Demonstrations on Osteology by Mr. Frost. A fee of 3*l.* 3*s.* is charged to each student requiring a certificate, for expenses. Physiology and General Anatomy.—Dr. Cavafy, Tuesday, Thursday, 3 P.M.; Friday 11 A.M. One course, 6*l.* 6*s.*; perpetual, 7*l.* 7*s.* Physiological Chemistry.—Mr. S. W. Moore, Monday, Wednesday, Friday, 10 A.M. Microscopical Anatomy.—Mr. Herbert Watney, Tuesday, Thursday, Saturday, 10 A.M. Comparative Anatomy, Dr. Cavafy, Monday, Friday, 4.30 P.M. Fee, one course, 4*l.* 4*s.* Principles and Practice of Physic. Dr. Barclay, Tuesday, Thursday, Saturday, 9 A.M. Fee, one course, 6*l.* 6*s.*; perpetual, 7*l.* 7*s.* Psychological Medicine.—Dr. Blandford. Pathology.—Mr. Dickinson, Thursday, 3 P.M. Fee, one course, 3*l.* 3*s.* Morbid Anatomy.—Mr. J. W. Haward. Principles and Practice of Surgery.—Mr. Holmes and Mr. Pick, Monday, Wednesday, Friday, 9 P.M. Fee, one course, 6*l.* 6*s.*; perpetual, 7*l.* 7*s.* A course of lectures in winter, and a summer course of practical instruction in minor surgery, operative surgery, bandaging, etc. Operative Surgery.—Mr. Pick, Monday, Wednesday, Friday, 3 P.M. Fee of 2*l.* 2*s.* charged, in order to provide subjects.—Ophthalmic Surgery.—Mr. Brudenell Carter, Monday, 10 A.M. Dental Surgery.—Mr. Vasey, Tuesday, 10 A.M. Aural Surgery.—Mr. Dalby, Wednesday, 3 P.M. Chemistry.—Dr. Noad, F.R.S., Tuesday, Thursday, Saturday, 11.30 A.M. Fee, one course, 6*l.* 6*s.*; perpetual, 8*l.* 8*s.* Practical Chemistry.—Dr. Noad, Monday, Wednesday, Thursday, Friday, 10 A.M.

Fee for the use of apparatus and materials, 4*l.* 4*s.* Midwifery and Diseases of Women and Children.—Dr. John Clarke, and Dr. R. J. Lee, Monday, Wednesday, Friday, 9 A.M. Fee, one course, 5*l.* 5*s.*; perpetual, 6*l.* 6*s.* Materia Medica.—Dr. Dickinson, Monday, Wednesday, Friday, 3 P.M. Fee, one course, 4*l.* 4*s.*; perpetual, 5*l.* 5*s.* Medical Jurisprudence.—Dr. Wadham, Tuesday, Thursday, Saturday, 9 P.M. Fee, one course, 4*l.* 4*s.*; perpetual, 5*l.* 5*s.* Botany.—Dr. Whipham, Tuesday, 3 P.M.; Wednesday, Thursday, 12 A.M. Fee, one course, 3*l.* 3*s.*; perpetual, 4*l.* 4*s.* Clinical Medicine.—Winter, Monday, Friday, 2 P.M.; summer, Monday, 2 P.M. Clinical Surgery.—Tuesday, 2 P.M. Clinical Ophthalmic Surgery.—Wednesday, Saturday, 3 P.M. Operations.—Thursday, 1 P.M.; in eye, Friday, 1.15 P.M. General fee for perpetual pupils (exclusive of Practical Chemistry), 105*l.*, in one payment. For hospital practice and lectures required by examining boards (except Practical Chemistry), 42*l.* for each of the first and second years, and 10*l.* 10*s.* for each succeeding year; gentlemen entering under this rule can become perpetual pupils by making up the payments to 115*l.* 10*s.* Lectures and hospital practice required for diploma in Dental Surgery of Royal College of Surgeons, 4*l.* 5*s.* Hospital Practice.—Medical, six months, 8*l.* 8*s.*; three years, 16*l.* 16*s.*; perpetual, 25*l.* 5*s.*; surgical, six months, 15*l.* 15*s.*; three years, 21*l.*; perpetual, 42*l.*

The hospital contains 350 beds, of which 200 are devoted to the reception of surgical, and 150 to medical cases.

Wards are especially set apart for the reception of cases of diseases of the eye, and diseases peculiar to women. In all the women's wards cribs are placed for the reception of children.

The pupils requiring certificates of attendance on hospital practice will be placed under the superintendence of the physicians and surgeons in rotation, and will have charge of the cases as clinical clerks and dressers. The library and reading-room are open during the greater part of the day. Every pupil subscribes 10*s.* 6*d.* to the library, at the commencement of each winter session; or may pay a compounding fee of 2*l.* on entrance. The museum is open daily to the pupils of the hospital. Gentlemen who have not already received instruction in pharmacy, may do so in the laboratory and dispensary of the hospital upon payment of a fee of 3*l.* 3*s.* Particular attention will be paid to that branch of pharmacy which will fit the students for private dispensing.

GUY'S HOSPITAL.—*Consulting Physicians*.—Sir William Gull, Bart., M.D., D.C.L., F.R.S. Dr. Owen Rees, F.R.S. *Consulting Surgeons*.—Mr. J. Hilton, F.R.S. Mr. Cock. *Consulting Obstetric Physician*.—Dr. Oldham. *Physicians*.—Dr. Habershon, Tuesday, Thursday, and Saturday, 1.30. Dr. Wilks, Monday and Thursday, 1.30. Dr. Pavy, Monday and Friday, 1.30. Dr. Moxon, Monday, Thursday, and Friday, 1.30. *Assistant Physicians*. Dr. Hilton Fagge, Friday, 12. Dr. Pye-Smith, Wednesday, 12. Dr. F. Taylor, Monday, 12. *Surgeons*.—Mr. Birkett, Mr. Cooper Forster, and Mr. Bryant, Monday and Thursday, 1.30. Mr. Durham, Monday, Thursday, and Friday, 1.30. *Assistant Surgeons*.—Mr. Howse, Monday and Thursday, 12. Mr. Davies-Colley, Wednesday and Saturday, 12. *Obstetric Physician*.—Dr. Braxton Hicks, F.R.S., Tuesday and Friday, 1.30. *Assistant Obstetric*

Physician.—Dr. Galabin (out-patients), Thursday and Saturday, 12; ward, Monday and Friday, 1.30. *Ophthalmic Surgeon*.—Mr. Bader, Tuesday and Saturday, 1.30. *Assistant Ophthalmic Surgeon*.—Mr. Higgins, Tuesday and Friday, 12. *Dental Surgeon*.—Mr. Salter, Thursday, 12. *Assistant Dental Surgeon*.—Mr. Moon, Tuesday and Friday, 12. *Aural Surgeon*.—Mr. Laidlaw Purves, Tuesday and Friday, 12. *Diseases of Skin*.—Dr. Fagge and Dr. F. Taylor, Tuesday, 12. *Medical Registrars*.—Dr. F. Taylor and Dr. Goodhart. *Surgical Registrar*.—Mr. F. Durham. *Apothecary*.—Mr. J. Stocker. *Curator of Museum*.—Dr. Fagge. *Lying-in Charity*.—Dr. Braxton Hicks and Dr. Galabin. *Secretary to School*.—Mr. Stocker. *Dean*.—Dr. F. Taylor. *Winter Courses of Lectures*.—Medicine.—Dr. Wilks and Dr. Habershon, Mondays, Wednesdays, and Fridays, 3. Fee, one course, 5*l.* 5*s.* Clinical Medicine.—Dr. Habershon, Dr. Wilks, Dr. Pavy, and Dr. Moxon, Saturday, 1.30. Surgery.—Mr. Birkett and Mr. Cooper Forster, Tuesdays and Thursdays, 3.30; Friday, 10.30. Fee, one course, 5*l.* 5*s.* Clinical Surgery.—Mr. Birkett, Mr. Forster, Mr. Bryant, and Mr. Durham, Wednesday, 1.30. Descriptive and Surgical Anatomy.—Mr. Durham and Mr. Howse, Tuesday, Wednesday, Thursday, and Friday, 9 A.M. Fee, one course, 5*l.* 5*s.* Physiology and General Anatomy.—Dr. Pavy and Dr. Pye-Smith, Monday, Wednesday, and Friday, 4.15. Fee, one course, 5*l.* 5*s.* Clinical Lectures on Midwifery and Diseases of Women.—Dr. Braxton Hicks, Wednesday, 1.30. Chemistry.—Dr. Debus and Dr. Stevenson, Tuesday, Thursday, and Saturday, 11. Fee, one course, 5*l.* 5*s.* Experimental Philosophy. Mr. W. Reinold, Saturday, 1. Fee, one course, 4*l.* 4*s.* *Demonstrations*.—Practical Surgery.—Mr. Davies-Colley. Fee, one course, 5*l.* 5*s.* Practical Anatomy.—Mr. R. C. Lucas, Demonstrator. Mr. Golding Bird and Mr. Jacobson, Assistant-Demonstrators, daily. Morbid Anatomy.—Dr. Fagge and Dr. Goodhart, daily, 2.30, throughout the year. Fee, one course, 5*l.* 5*s.* Practical Physiology.—Dr. Pye-Smith. Monday, Thursday, and Saturday, 1.30. Fee, one course, 4*l.* 4*s.* *Summer Courses*. *Lectures*.—Materia Medica and Therapeutics, Dr. Moxon, Tues., Thurs., and Fri., at 3. Fee: One course, 4*l.* 4*s.* Midwifery and Diseases of Women, Dr. Braxton Hicks, F.R.S., Tues., Wed., Thurs., and Fri., 9 A.M. Fee: one course, 5*l.* 5*s.* Medical Jurisprudence, Dr. Alfred Taylor, F.R.S., Tues., Thurs., and Sat., 10. Fee: one course, 4*l.* 4*s.* Clinical Medicine, Dr. Fagge, Dr. Pye-Smith, and Dr. F. Taylor, Wed., 1.30. Clinical Surgery, Mr. Howse, and Mr. Davies-Colley, Fri., 1.30. Ophthalmic Surgery, Mr. Bader, Thurs., 2. Clinical Lectures on Diseases of Women, Dr. A. L. Galabin, Mon., 3. Pathology, Dr. Fagge, Sat., 9. Hygiene, Dr. F. Taylor, Wed., 12.15. Fee: one course, 4*l.* 4*s.* Comparative Anatomy and Zoology, Dr. Pye-Smith, Mon. and Fri., 1.30. Fee: one course, 4*l.* 4*s.* Mental Diseases, Dr. Savage, Mon., 10. Botany, Dr. Stokoe, Tues., Thurs., and Sat., 11.30. Fee: one course, 4*l.* 4*s.* Dental Surgery, Mr. Moon. *Demonstrations*.—Practical Chemistry, Dr. Debus, F.R.S., Mon., Wed., and Fri., 10 to 1. Fee: one course, 4*l.* 4*s.* Operative Surgery, Mr. Davies-Colley, Mon. and Thurs., 3.30. Fee: one course, 5*l.* 5*s.* Practical Courses and University Classes in Anatomy, Physiology, Botany, Comparative Anatomy, Morbid Histology, and Natural Philosophy. *Fees for Hospital Practice and Lectures*.—

First year, 40*l.*; Second Year, 40*l.*; Third Year, 20*l.*; and 10*l.* for each succeeding year of attendance. One payment of 100 guineas entitles a student to a perpetual ticket. Pupils attending practical classes are charged for the materials used. Single Courses of Lectures may be attended on the terms mentioned above in connection with each Class. Attendance on either the Medical or the Surgical Practice of the Hospital:—Three months, 10*l.* 10*s.*; Six months, 15*l.* 15*s.*; Perpetual, 26*l.* 5*s.* The Hospital contains accommodation for 690 patients. There are ophthalmic wards with 50 beds, and obstetric wards with 26 beds.—The Museum of Human Anatomy contains the collection of anatomical models made by Mr. Towne, besides about 2,000 preparations.—The Museum of Comparative Anatomy contains 2,000 specimens.—The Museum of Pathological Anatomy contains upwards of 5,000 specimens, with more than 2,000 drawings.—The Museum of Materia Medica contains specimens of the drugs in general use.—The accommodation for class teaching has lately been much enlarged.—The Library contains upwards of 5,000 volumes, and is open to the students daily from 10 A.M. to 4 P.M.

KING'S COLLEGE.—*Winter Session.*—Anatomy.—Professor Curnow, M.D., daily except Mon., 9; fee, one course, 7*l.* 7*s.*; perpetual, 10*l.* 10*s.* Physiology.—Professor Rutherford, M.D., Mon., Wed., Thurs., Fri., 4; one course, 7*l.* 7*s.*; perpetual, 10*l.* 10*s.* Practical Physiology.—Professor Rutherford and demonstrators, Tues., 11.15; one course, 3*l.* 3*s.*; perpetual, 5*l.* 5*s.* Chemistry.—Professor Bloxam, Mon., Wed., Thurs., 10.15; one course, 7*l.* 7*s.*; perpetual, 10*l.* 10*s.* Medicine.—Professor G. Johnson, M.D., F.R.S., Tues., 4; Thurs., Fri., 5; one course or perpetual, 7*l.* 7*s.* Surgery.—Professor Wood, F.R.S., Mon., Tues., Wed., 5; one course or perpetual, 7*l.* 7*s.* *Summer Session.*—Obstetric Medicine.—Professor Playfair, M.D., Tues., Wed., Thurs., Fri., 9 A.M.; one course, 4*l.* 4*s.*; perpetual, 5*l.* 5*s.* Comparative Anatomy.—Professor A. H. Garrod, Tues., Fri., Sat., 10.15; one course, 3*l.* 3*s.*; perpetual, 4*l.* 4*s.* Botany.—Professor Bentley, Mon., Tues., Thurs., Fri., 12.15; one course, 4*l.* 4*s.*; perpetual, 5*l.* 5*s.* Practical Chemistry.—Professor Bloxam and demonstrators, Mon., Thurs., Fri., 10.15; one course, 4*l.* 4*s.*; perpetual, 7*l.* 7*s.* Forensic Medicine.—Professor Ferrier, M.D., Mon., Tues., Wed., Fri., 12.15; one course, 4*l.* 4*s.*; perpetual, 5*l.* 5*s.* Materia Medica.—Professor E. B. Baxter, M.D., Tues., Wed., Thurs., Fri., 8 A.M.; one course, 4*l.* 4*s.*; perpetual, 5*l.* 5*s.* Pathological Anatomy.—Professor Beale, M.B., F.R.S., Tues., Fri., 4; one course, 2*l.* 2*s.*; perpetual, 3*l.* 3*s.* Practical Physiology.—Professor Rutherford and demonstrator, Mon., Wed., Fri., 4; one course, 2*l.* 2*s.*; perpetual, 3*l.* 3*s.* Hygiene.—Professor Guy, M.B., F.R.S. Dental Surgery.—Professor S. Cartwright. Ophthalmology.—Professor Soelberg Wells. Psychological Medicine.—Professor E. Sheppard, M.D.

KING'S COLLEGE HOSPITAL.—*Consulting Physicians.*—Sir Thos. Watson, Bart. M.D., F.R.S.; Dr. G. Budd, F.R.S.; Dr. A. Farre, M.D., F.R.S.; Dr. W. A. Guy, F.R.S.; Dr. W. O. Priestley; Dr. A. B. Garrod, F.R.S. *Physicians.*—Dr. G. Johnson, F.R.S., Mon., Thurs., 2. Dr. Beale, F.R.S., Tues., Sat., 2. Dr. A. B. Duffin, M.D., Wed., Fri., 2. *Physician Accoucheur.*—Dr. Playfair, Tues., Thurs., Sat., 1.30. *Assistant-Physicians.*—Dr. B. Yeo, Tues., Fri., 1. Dr. Rutherford, Mon.,

Thurs., 1. Dr. Ferrier, Wed., Sat., 1. *Assistant Physician Accoucheur.*—Dr. Hayes, Tues., Thurs., Sat., 12.30. *Consulting Surgeon.*—Mr. J. M. Arnott, F.R.S. *Surgeons.*—Sir W. Fergusson, Bart., F.R.S., Tues., Thurs., Sat., 1.30. Mr. J. Wood, F.R.S., Mon., Wed., Fri., 1.30. Mr. H. Smith, Mon., Wed., Fri., 1. *Assistant-Surgeon.*—Mr. Bell, Tues., Thurs., Sat., 1. *Dental Surgeon.*—Mr. Cartwright, Tues., Fri., 10. *Assistant-Dental Surgeon.*—Mr. S. H. Cartwright, Tues., Fri., 10. *Ophthalmic Surgeon.*—Mr. Soelberg Wells, Tues., Thurs., Sat., 1. *Vaccinator.*—Mr. R. W. Dunn, M.R.C.S. *Pathological Registrar.*—Dr. U. Pritchard. *Administrator of Chloroform.*—Mr. Moss. *Fees.*—Matriculated Students, three years, 31*l.* 10*s.*; perpetual, 42*l.*; not Matriculated, three years, 42*l.*; perpetual, 52*l.* 10*s.* *Medical Practice:*—Three months, 6*l.* 6*s.*; six months, 10*l.* 10*s.*; eighteen months, 15*l.* 15*s.*; perpetual, 26*l.* 5*s.* *Surgical Practice:*—Three months, 10*l.* 10*s.*; six months, 15*l.* 15*s.*; twelve or twenty-one months, 21*l.*; perpetual, 31*l.* 10*s.*

LONDON HOSPITAL AND MEDICAL COLLEGE.—*Physicians.*—Dr. Andrew Clark, Monday and Thursday, 2 P.M.; Dr. J. S. Ramskill, Wednesday and Friday 2 P.M.; Dr. Langdon Down, Tuesday and Friday, 2 P.M.; Dr. Hughlings Jackson, Monday and Thursday, 2 P.M.; Dr. H. G. Sutton (out patients), Monday and Thursday, 1.30 P.M. *Surgeons.*—Mr. Hutchinson, Monday and Thursday, 2 P.M. Mr. Maunder, Tuesday and Friday, 1.30 P.M.; Mr. Couper, Wednesday and Saturday, 1.30 P.M.; Mr. Rivington, Monday and Thursday, 1.30 P.M. *Assistant-Physicians.*—Dr. Fenwick and Dr. Woodman, Tuesday and Friday, 1.30 P.M.; Dr. Stephen Mackenzie, Wednesday and Saturday, 1.30 P.M.; Dr. A. E. Sansom, Monday and Thursday, 1.30 P.M. *Assistant-Surgeons.*—Mr. James Adams on Tuesday and Friday, 1.30 P.M.; Mr. Waren Tay and Mr. McCarthy, Monday and Thursday, 1.30 P.M.; Mr. Reeves, Tuesday and Saturday, 1.30 P.M. *Obstetric Physicians.*—Dr. Head in Obstetric Wards, Tuesday and Friday, 1.30 P.M.; Dr. Palfrey in Obstetric Out-patients Department, Wednesday and Saturday, 1.30 P.M. *Ophthalmic Department.*—Mr. James Adams and Mr. Tay, out-patients, Wednesday and Saturday, 9 A.M. *Aural Department.*—Mr. Rivington and Mr. Reeves, Saturday, 9.30 A.M. *Skin Department.*—Mr. McCarthy, Wednesday, 9 A.M. *Dental Department.*—Mr. Barrett, Tuesday, 10 A.M. Operation day, Wednesday, 2 P.M. *Winter Session, 1874-75.*—Medicine.—Dr. Herbert Davies, Dr. J. S. Ramskill, and Dr. Langdon Down, before Christmas, Monday, Wednesday, and Thursday, 9.15 A.M.; after Christmas Thursday, 9.15 A.M., Tuesday and Friday, 4 P.M. Fee: One session, 5*l.* 5*s.*; unlimited, 6*l.* 6*s.* Surgery.—Mr. John Couper, Tuesday, Friday, and Saturday, 9 A.M. In connection with the lectures on Surgery short special courses of lectures on Ophthalmic Diseases will be given in the summer. Fee: One session, 5*l.* 5*s.*; unlimited, 6*l.* 6*s.* Descriptive and Surgical Anatomy.—Mr. Walter Rivington, Monday, Tuesday, Thursday, and Friday, 3 P.M. Fee: One session, 5*l.* 5*s.*; unlimited, 8*l.* 8*s.* Morbid Anatomy and Pathology.—Dr. H. G. Sutton, Thursday, 12.30 P.M. One year, 3*l.* 3*s.*; unlimited, 6*l.* 6*s.* Physiology and General Anatomy, Practical Histology, and the use of the Microscope.—Mr. Jeremiah McCarthy, Monday, Wednesday, and Thursday, 4 P.M. One course, 4*l.* 4*s.*; unlimited, 6*l.* 6*s.* Practical Anatomy.—Mr.

James Adams and Mr. H. A. Reeves, assisted by Prosectors, daily from 10 to 3, excepting Wednesday and Saturday afternoons. One course, 5*l.* 5*s.*; unlimited, 8*l.* 8*s.*; Chemistry.—Dr. Letheby and Dr. Meymott Tidy, Monday, Wednesday, and Friday, 10.30 A.M. One course, or unlimited, 7*l.* 7*s.* Anatomy and Pathology of the Teeth, and Dental Surgery.—Mr. H. J. Barrett. In March, at 5 P.M., on days to be announced. Fee, 2*l.* 2*s.* *Summer Session.*—Midwifery and Diseases of Women and Children.—Dr. Head, Monday, Wednesday, Thursday, and Friday, at 3 P.M. One session, 4*l.* 4*s.*; unlimited, 6*l.* 6*s.* Forensic Medicine.—1. Toxicology. Mr. Rodgers. Daily, except Saturday, during May and first part of June, 10 A.M. 2. Medical Jurisprudence and Public Health.—Dr. C. Meymott Tidy. Daily, except Saturday, during the last part of June and July, 10 A.M. One session, 3*l.* 3*s.*; unlimited, 4*l.* 4*s.* Materia Medica and General Therapeutics. Dr. Prosser James. Tuesday, Thursday, and Friday, 4 P.M. One session, 3*l.* 3*s.*; unlimited, 4*l.* 4*s.* Ophthalmic Diseases.—Mr. Couper. Tuesday and Friday, 8 A.M. in June. One session, 2*l.* 2*s.*; unlimited, 4*l.* 4*s.* Practical Chemistry.—Dr. Letheby. In May, June, and July, on Monday, Thursday, and Saturday, 9 A.M. Fee to students of hospital, 2*l.* 2*s.*; to others, 3*l.* 3*s.* Botany.—Mr. Baker. Monday, Wednesday, and Friday, 11 A.M. One session, 3*l.* 3*s.*; unlimited, 4*l.* 4*s.* Comparative Anatomy.—Tuesday and Thursday, 11 A.M. One session, 3*l.* 3*s.*; unlimited, 4*l.* 4*s.* Operative Surgery.—Mr. C. F. Maunders. Diseases of the Throat.—Dr. Morell Mackenzie. One session, 2*l.* 2*s.*; unlimited, 3*l.* 3*s.* Morbid Anatomy and Pathology.—Dr. G. Sutton. Thursday, 12.30. One year, 3*l.* 3*s.*; unlimited, 6*l.* 6*s.* Clinical lectures.—October, November, Dr. A. Clark, Monday, 2 P.M.; November, December, Dr. Langdon Down, Tuesday, 2 P.M.; January, February, Dr. Ramskill, Wednesday, 3.30 P.M.; February, March, Dr. Hughlings Jackson, Monday, 2 P.M.; May, Dr. Sutton, Tuesday, 2 P.M.; June, Dr. S. Fenwick, Monday, 2 P.M.; July, Dr. Woodman, Saturday, 3 P.M. A Surgical Clinical Lecture weekly. Clinical Obstetric Lecture, Dr. Head, second Friday of each month, 2.30 P.M.; in summer, Dr. Palfrey, alternate Tuesday, 2.30 P.M.

General fee for perpetual attendance on all the lectures, with two years' practical anatomy, and attendance on medical and surgical practice, 94*l.* 10*s.* Composition fee for gentlemen entering at or before the beginning of their second winter session, 73*l.* 10*s.* Perpetual fee for lectures and hospital practice, and two years' practical anatomy, 105*l.* Perpetual fee for lectures alone, 52*l.* 10*s.* Perpetual fee for hospital practice alone, 52*l.* 10*s.* Practical Chemistry (for apparatus, etc.), 2*l.* 2*s.* Library (compulsory), 1*l.* 1*s.* Instruction in Practical Pharmacy, 4*l.* 4*s.* A fee of half a guinea will be charged to those students who do not bring their own microscopes for use in the course of practical physiology. The general fee and the perpetual fee are payable in two instalments of 45 and 50 guineas each respectively at the commencement of each of the first two years of attendance. The perpetual fee can be paid in three instalments, 45 guineas at the commencement of each of the first two years of attendance, and ten guineas at the commencement of the third year. The composition fee is payable in two instalments of 35 guineas. Students who have paid the general fee can become perpetual pupils at any time subsequently by the payment of the additional 10 guineas. Special entries

can be made either to lectures or to hospital practice. Medical practice.—Six months, 6*l.* 6*s.*; period required by Apothecaries' Hall, 12*l.* 12*s.*; unlimited, 21*l.* Surgical practice and dressing.—Six months, including three months' dressership, 8*l.* 8*s.*; twelve months, including six months' dressership, 12*l.* 12*s.*; eighteen months, including twelve months' dressership, 18*l.* 18*s.*; three years, including twelve months' dressership, 26*l.* 5*s.*; three years, including two years' dressership, 31*l.* 10*s.* Twelve months' dressership, after term of three years, 8*l.* 8*s.* The Hospital contains about 600 beds, thus allotted: Accidents and surgical cases, 324; medical cases, 179; diseases of women 13; children under seven years of age, 36; ophthalmic cases, 12; outdoor wards, 36. The completion of the new wing, of which the foundation was laid in June last, will raise the number of beds to 800. The Anatomical and Pathological Museum, the Materia Medica Museum, and the library are open daily.

ST. MARY'S HOSPITAL.—*Consulting Medical Officers.*—Sir James Alderson, M.D., F.R.S.; Dr. Chambers; Dr. Sibson, F.R.S.; Mr. Coulson; Mr. Lane; Mr. White Cooper. *Physicians.*—Dr. Handfield Jones, F.R.S., Monday, Thursday, 1.15; Dr. Sieveking, Tuesday, Friday, 1.15; Dr. Broadbent, Wednesday, Saturday, 1.15. *Assistant-Physicians.*—Dr. Cheadle, Tuesday, Friday, 1; Dr. Lawson, Wednesday, Saturday, 1; Dr. Shepherd, Monday, Thursday, 1. *Physicians for Diseases of the Skin.*—Dr. Handfield Jones, F.R.S., Thursday, Saturday, 1.15; Dr. Cheadle, Tuesday, Thursday, 1.30. *Surgeons.*—Mr. Spencer Smith, Monday, Thursday, 1.15; Mr. Haynes Walton, Thursday, Saturday, 1.15; Mr. James R. Lane, Tuesday, Friday, 1.15. *Assistant-Surgeons.*—Mr. Gascoven, Monday, Thursday, 1; Mr. Norton, Wednesday, Saturday, 1; Mr. Edmund Owen, Tuesday, Friday, 1.—*Physician-Accoucheur.*—Dr. A. Meadows, Tuesday, Friday, 9.30. *Assistant Physician-Accoucheur.*—Dr. Wiltshire, Tuesday, Friday, 1.30. *Surgeon of Ophthalmic Department.*—Mr. Haynes Walton, Monday, Thursday, 1.30. *Surgeon for Diseases of the Throat.* Mr. Norton, Wednesday, Saturday, 12.30. *Aural Surgeon.*—Mr. G. Field, Tuesday, Friday, 2. *Surgeon Dentist.*—Mr. Howard Hayward, Wednesday, Saturday, 9.30. *Lectures: Winter Session.*—Principles and Practice of Medicine (Dr. Chambers and Dr. Broadbent), Mondays, Wednesdays, and Thursdays, 4 P.M. Fee: One Course, 4*l.* 4*s.*; Unlimited, 6*l.* 6*s.* Principles and Practice of Surgery (Mr. James R. Lane and Mr. Gascoven), Tuesdays and Fridays, 4; Wednesdays, 3. Fee: One Course, 4*l.* 4*s.*; Unlimited 6*l.* 6*s.* Pathology.—Dr. Cheadle; Tuesday and Friday, 12. Fee: One Course, 3*l.* 3*s.* General Physiology.—Dr. Lawson; Wednesday and Saturday, 12. Fee: One Course, 3*l.* 3*s.*; Unlimited, 4*l.* 4*s.* Histology and Experimental Physiology.—Dr. Shepherd. There are two Courses; one for First Year's Students, at 10 o'clock, on Tuesday and Friday before, and on Tuesdays only after Christmas; the other, voluntary, for Second Year's Students, at the same hour on Wednesdays before, and on Wednesdays and Fridays after Christmas. Fee: For One Course, 3*l.* 3*s.*; Unlimited, 4*l.* 4*s.* Descriptive and Surgical Anatomy.—Mr. Norton; Monday, Tuesday, Thursday, and Friday, 2.45. Fee: One Course, 6*l.* 6*s.*; Unlimited, 8*l.* 8*s.* Practical Anatomy.—Mr. Edmund Owen, Demonstrator; Mr. G. M.

J. Giles, Assistant Demonstrator. The Dissecting Room is open every day, from 9 A.M. till 5 P.M., except on Saturday, when it is closed at 1 P.M. Students who have not entered to either the Anatomical or the Physiological Class of these classes can dissect on payment of a fee of 3*l.* 3*s.* for each Session. Each General Student pays a fee of 1*l.* 15*s.* at the commencement of the First and Second Winter Sessions for subjects. Chemistry and Physics. Dr. C. R. A. Wright, Mondays, Tuesdays, Thursdays, and Fridays, 9 A.M. Fee: One Course, 5*l.* 5*s.*; Unlimited, 7*l.* 7*s.* Dental Surgery.—Mr. Howard Hayward, Wednesdays and Saturdays, 9.30 A.M. Fee: 2*l.* 2*s.* *Summer Session.*—Materia Medica and Therapeutics.—Dr. Farquharson, Tuesday, Wednesday, Friday, and Saturday, 12 noon. Fee: One Course, 4*l.* 4*s.*; Unlimited, 6*l.* 6*s.* Midwifery and Diseases of Women and Children.—Dr. Alfred Meadows, Tuesday, Wednesday, Thursday, and Friday, 9 A.M. Fee: One Course, 4*l.* 4*s.*; Unlimited, 6*l.* 6*s.* Forensic Medicine and Public Hygiene.—Dr. Randall, Mondays, Wednesdays, and Thursdays, 10 A.M. Fee: One Course, 3*l.* 3*s.*; Unlimited, 4*l.* 4*s.* Botany.—Dr. Trimen, Mondays, Wednesdays, and Fridays, 10.30 A.M. Fee: One Session, 3*l.* 3*s.*; Unlimited, 4*l.* 4*s.* Practical Chemistry.—Dr. C. R. A. Wright, Inorganic Course, Tuesdays and Fridays, 10 A.M. Comparative Anatomy and Zoology.—Mr. St. George Mivart, F.R.S., Tuesdays and Thursdays, 11 A.M. Fee: One Session, 2*l.* 2*s.*; Unlimited, 3*l.* 3*s.* Ophthalmic Surgery.—Mr. Haynes Walton, Monday, 2.45. Fee for Course, 2*l.* 2*s.* Aural Surgery.—Mr. Field, Friday, 3. Fee for Course, 2*l.* 2*s.* Diseases of the Skin.—Dr. Cheadle, Thursday, 2. Clinical Lectures will be delivered as follows: Dr. Handfield Jones, every Thursday; Mr. Spencer Smith, every Monday; Dr. Sievekling, every alternate Friday; Mr. Broadbent, every alternate Saturday; Mr. Haynes Walton, every alternate Saturday; Mr. James R. Lane, every alternate Tuesday; Dr. Meadows, every alternate Tuesday. Mr. S. J. Knott, the Medical Tutor, will attend the Hospital daily in the Medical and Surgical Wards alternately, from 10 to 12 A.M., to direct and assist the Clinical Clerks, and afford the Students instruction in the Physical Examinations of such cases as the Physicians and Surgeons may allot for the purpose. He will teach the use of the Stethoscope and other instrumental aids to diagnosis, together with the systematic description and report of cases. The Hospital contains 170 beds, 68 of which are devoted to Medical and 102 to Surgical cases. A ward is appropriated to the Diseases of Women, and beds are provided for Ophthalmic cases. There is a Reading Room and Library in the Hospital, which is open daily for the use of the Students. It is partly supported by a grant from the school funds, and a fee of 1*l.* 1*s.* is paid on entrance by each student. The Museum is open daily to Students. It contains about 3,000 specimens illustrating healthy and morbid Human Anatomy, nearly 700 of which were presented by Mr. Lane; a number of preparations of the Genito-urinary Organs, with a collection of Calculi, by Mr. Coulson; a valuable Midwifery Series by Mr. North; and a Series of Wax preparations, illustrative of the Diseases of the Eye, by Mr. Ernest Hart. The specimens are arranged in Sections, and described in a Catalogue, so as to be available for reference. There is a very good Materia Medica Department, arranged in accordance with the British Pharmacopœia; and also a collection of specimens, illustrative of Comparative Anatomy, to-

gether with apparatus for illustrating the subject of Natural Philosophy.

Fees: Medical Practice, Three Months, 5*l.* 5*s.*; Six Months, 7*l.* 7*s.*; Twelve Months, 12*l.* 12*s.*; Eighteen Months, 15*l.* 15*s.*; Unlimited, 21*l.* Surgical Practice, Three Months, 6*l.* 6*s.*; Six Months, 9*l.* 9*s.*; Twelve Months (or the time required by the College of Surgeons), 21*l.*; Unlimited, 31*l.*; Entrance Fee to all the Lectures required for the Examinations at the Royal Colleges of Physicians and Surgeons, and the Society of Apothecaries, 52*l.* 10*s.*; Entrance Fee to the Hospital Practice required by the Royal Colleges of Physicians and Surgeons, and the Society of Apothecaries, 36*l.* 15*s.*; Entrance Fee to the Hospital Practice and Lectures required by the Royal College of Physicians and Surgeons and the Society of Apothecaries, 89*l.* 5*s.* in instalments, or 84*l.* in one sum. Entrance fee for unlimited attendance on the hospital practice, and all lectures delivered in the school, including one course of Practical Chemistry, 105*l.*, in instalments or 99*l.* 15*s.* in one sum; Entrance Fee to the Hospital Practice and Lectures required for the Examination in Dental Surgery by the Royal College of Surgeons, 52*l.* 10*s.* Students who have kept the two years' Course of Medical Study at the University of Cambridge are admitted as Perpetual Pupils on payment of a Composition Fee of 57*l.* 10*s.*, and Students who have kept a portion of the course there or elsewhere at a proportionate reduction. The entrance fees may be paid by instalments of 40*l.* at the commencement of the first year, 35*l.* at the commencement of the second year, and the remainder at the commencement of the third year, or in different sums by special arrangement with the Dean of the School. Students can make special entries to any of the Courses of Lectures, or to periods of hospital practice.

MIDDLESEX HOSPITAL.—*Consulting Physicians.* Dr. F. Hawkins, Dr. A. P. Stewart, Dr. Goodfellow. *Consulting Surgeon.*—Mr. Shaw. *Physicians.*—Dr. H. Thompson and Dr. Greenhow, Tuesday, Thursday, Saturday, 1; Dr. R. Swain, Monday, Wednesday, Friday, 1.30. *Obstetric Physician.*—Dr. J. Hall Davis, Tuesday, Friday, 1.30. *Assistant-Physicians.* Dr. Cayley, Monday, Wednesday, 8.30; Dr. Robert King, Thursday, 8.30, Saturday, 4; Dr. G. H. Evans, Tuesday, 4, Friday, 8.30. *Assistant Obstetric Physician.*—Dr. Arthur Edis, Wednesday, Saturday, 1.30. *Surgeons.*—Mr. De Morgan, F.R.S., Monday, Friday, 1; Mr. Nunn, Tuesday, Friday, 1; Mr. Hulke, F.R.S., Monday, Thursday; eye, Tuesday, Friday, 8.30; Mr. Lawson, Thursday, Saturday, 1. *Assistant-Surgeons.*—Mr. Morris, Monday, Friday, 1; cancer, Thursday, 1.30; Mr. Andrew Clark, Thursday, Saturday, 1. *Consulting Dental Surgeon.* Mr. Tomes, F.R.S. *Dental Surgeon.*—Mr. Turner, daily, 9. *Registrars.*—Mr. Sidney Coupland, M.B., Mr. Andrew Clark. *Resident Medical Officer.*—Mr. Lucas. *Chloroformist.*—Mr. G. Everitt Norton, operations, Wednesday, 1.

Lectures.—Winter Session.—Principles and Practice of Medicine.—Dr. Greenhow, F.R.S. Monday, Wednesday, and Friday, 9. Fee, one session, 6*l.* 6*s.*; unlimited, 8*l.* 8*s.* Principles and Practice of Surgery.—Mr. De Morgan, F.R.S. Monday, Wednesday, and Thursday, 3. Fee, one session, 6*l.* 6*s.*; unlimited, 8*l.* 8*s.* Practical Surgery.—Mr. Hulke, F.R.S., Mr. Lawson, and Mr. Morris. Monday and Thursday, 3. Fee, one course, 6*l.* 6*s.* Physiology and General Anatomy.—Mr. Lowne. Tuesday,

Thursday, and Saturday, 9. Fee, one course, 6*l.* 6*s.*; unlimited, 8*l.* 8*s.* Descriptive and Surgical Anatomy. Mr. Morris. Monday, Tuesday, Thursday, and Friday, 4. Fee, one course, 8*l.* 8*s.*; unlimited, 12*l.* 12*s.* Chemistry.—Mr. Heisch. Monday, Thursday, and Friday, 3; Saturday, 11. Fee, one course, 6*l.* 6*s.*; perpetual, 8*l.* 8*s.* Pathological Anatomy.—Dr. Cayley. Monday and Thursday, 4. Fee, one course, 4*l.* 4*s.*; unlimited, 5*l.* 5*s.* Parasitic Diseases. Dr. Cobbold, F.R.S. Clinical Lectures on Medicine.—The Physicians. Friday, 3. Clinical Lectures on Surgery.—The Surgeons. Friday, 3. Clinical Lectures on Diseases of Women and Children.—Dr. J. Hall Davis. Tuesday, 10. Clinical Lectures on Diseases of the Eye.—Mr. Hulke, F.R.S., Tuesday, 8.30. Dissecting-Room.—Mr. Hensman and Mr. Karop, Demonstrators. 9 to 4, daily. Fee for dissecting, one session, 6*l.* 6*s.*; unlimited, 8*l.* 8*s.*; course of lectures on anatomy, with dissection, one session, 10*l.* 10*s.*; unlimited, 14*l.* 14*s.* *Summer Session.*—Midwifery and Diseases of Women and Children.—Dr. J. Hall Davis. Tuesday, Thursday, and Saturday, 9. One session, 4*l.* 4*s.*; unlimited, 5*l.* 5*s.* Materia Medica and Therapeutics.—Dr. Thorowgood. Monday, Wednesday, and Friday, 4. One session, 4*l.* 4*s.*; unlimited, 5*l.* 5*s.* Medical Jurisprudence.—Dr. R. King. Monday, Wednesday, and Friday, 9. One session, 4*l.* 4*s.*; unlimited, 5*l.* 5*s.* Botany.—Mr. Hensman. Monday, Wednesday, and Friday, 10. One session, 4*l.* 4*s.*; unlimited, 5*l.* 5*s.* Practical Chemistry.—Mr. Heisch. Monday and Thursday, 3; Friday, 11.30. Fee per course, 3*l.* 3*s.* Practical Physiology and Histology.—Mr. Lowne. Monday, Wednesday, and Thursday, 9. Fee for session, 4*l.* 4*s.* Public Health.—Dr. G. H. Evans. Comparative Anatomy and Zoology.—Mr. Hensman. Tuesday and Thursday, 4. Fee per course, 3*l.* 3*s.* Psychological Medicine.—Dr. Henry Rayner. Fee for course, 3*l.* 3*s.* Clinical Lectures on Medicine and Surgery.—The Physicians. As in winter. Clinical Instruction on Diseases of the Eye.—Mr. Hulke, F.R.S. Tuesday and Friday, 11.30. Practical Demonstrations on Diseases of the Skin.—Dr. R. Liveing. Demonstrations on Diseases of the Larynx and Ear.—Mr. A. Clark. The Hospital contains upwards of 300 beds, of which 185 are devoted to surgical, and 120 to medical cases. There are 33 beds for cases of cancer; also wards for cases of uterine disease and of syphilis, and beds for cases of diseases of the eye. The Museum is open to students daily from 9 to 5. It contains above 5,000 specimens. The Library and Reading-Room are open to all general students. Occasional students may use the Library on payment of 1*l.* 1*s.* The College tutors, Mr. A. Clark and Mr. Sidney Coupland, assist all general students, especially those who are preparing for examination before any of the Licensing Boards. *Fee.*—General fee for attendance on the hospital practice and lectures, 90*l.*, if paid in one sum on entrance. The fee may be paid by instalments of 35*l.* on entrance, 35*l.* at the beginning of the second winter session, 20*l.* at the beginning of the third winter session, and 10*l.* for every additional year. Members of the University of Oxford, Cambridge, or Durham, who have completed one year of medical study at the University, are admitted to all lectures and hospital practice required by the Universities, or for the above-named qualifications, exclusive of practical chemistry, on payment of 55*l.* in one sum on entrance. This fee may be paid by instalments of 35*l.* on entrance, and 20*l.* at the

beginning of the second winter session; but students who pay by instalments will be required to pay 10*l.* for every additional year's attendance after the second year. For the instruction required by students who intend to become licentiates in dental surgery of the Royal College of Surgeons, 42*l.* in one payment, or 26*l.* 5*s.* on entrance, and 15*l.* 15*s.* at the beginning of the winter session.—Hospital Practice for Occasional Pupils: perpetual fee, 26*l.* 5*s.*; or instalments of 10*l.* 10*s.* at the beginning of the first year, 10*l.* 10*s.* at the beginning of the second year, 5*l.* 5*s.* at the beginning of the third year, and 5*l.* 5*s.* for every additional year after the third. For unlimited attendance on either medical or surgical practice separately, 15*l.* 15*s.*, in one sum. For one year's attendance on either medical or surgical practice separately, 8*l.* 8*s.* For six months' attendance on both medical and surgical practice, 7*l.* 7*s.*, or for either, 5*l.* 5*s.* Occasional pupils who do not enter at once for an unlimited period of attendance on hospital practice must pay a registration fee of 1*l.* 6*s.* Instruction in Dental Practice: fee for occasional students, 5*l.* 5*s.* Instruction in Pharmacy, without dispensing: three months, 4*l.* 4*s.* With dispensing: six months, 5*l.* 5*s.*, twelve months, 8*l.* 8*s.*

ST. THOMAS'S HOSPITAL.—*Consulting Physician.* Dr. J. Risdon Bennett. *Consulting Surgeon.*—Mr. F. Le Gros Clark. *Physicians.*—Dr. Peacock, Dr. Bristowe, Dr. Clapton, Dr. Murchison. *Obstetric Physician.*—Dr. Barnes. *Surgeons.*—Mr. Simon, Mr. Sydney Jones, Mr. Croft, Mr. Mac Cormac. *Ophthalmic Surgeon.*—Mr. Liebreich. *Assistant Physicians.*—Dr. Stone, Dr. Ord, Dr. John Harley, Dr. Payne. *Assistant Obstetric Physician.*—Dr. Gervis. *Assistant Surgeons.*—Mr. Francis Mason, Mr. Hy. Arnott, Mr. W. W. Wagstaffe. *Dental Surgeon.*—Mr. J. W. Elliott. *Assistant Dental Surgeon.*—Mr. W. G. Ranger. *Resident Assistant Physician.*—Dr. Turner. *Resident Assistant Surgeon.*—Mr. A. O. McKellar. *Demonstrator of Morbid Anatomy.*—Dr. Payne. *Analytical Chemist to the Hospital.*—Dr. Albert J. Bernays. *Curator of the Museum.*—Mr. C. Stewart. *Apothecary.*—Mr. R. W. Jones. *Registrars—Medical,* Mr. W. S. Greenfield; *Surgical,* Mr. S. Osborne. The physicians and surgeons commence their respective visits at fixed times, from 8.30 to 9.30. Operations on Wednesday and Saturday at 1.30, and Saturday at 9.30. Operations in the Eye Department on Thursday at 3. *Post mortem* examinations at 2.

Lectures.—Winter Session.—Demonstrations.—The Anatomical Lecturers, Mr. Rainey, Mr. R. W. Reid, and Assistants, daily, 9 to 3. Fee: single, 5*l.* 5*s.*; perpetual, 8*l.* 8*s.* Chemistry.—Dr. Albert J. Bernays, Tuesday, Thursday, Friday, 12. Fee: single, 5*l.* 5*s.*; perpetual, 8*l.* 8*s.* Physics and Natural Philosophy. Dr. Stone, Saturday. Fee: single, 3*l.* 3*s.*; perpetual, 4*l.* 4*s.* Theory and Practice of Medicine.—Dr. Peacock and Dr. Murchison, Monday, Thursday, or Friday, 2; Wednesday, 5. Fee: single, 5*l.* 5*s.*; perpetual, 8*l.* 8*s.* Morbid Anatomy and Practical Pathology.—Mr. Henry Arnott, Monday. Fee: single, 3*l.* 3*s.*; perpetual, 4*l.* 4*s.*; 10*s.* 6*d.* for expenses. Descriptive Anatomy.—Mr. Francis Mason and Mr. W. W. Wagstaffe, Monday, Tuesday, Thursday, Friday, 3; Wednesday, 12.30. Fee: single, 5*l.* 5*s.*; perpetual, 8*l.* 8*s.* Clinical Ophthalmic Surgery.—Mr. Liebreich, Monday, Thursday, 3. General Pa-

thology.—Dr. Bristowe, Thursday, 4. (See Morbid Anatomy.) Physiology and General Anatomy.—Dr. Ord and Dr. John Harley, Monday, Wednesday, Friday, 4. Fee: single, 5*l.* 5*s.*; perpetual, 8*l.* 8*s.* Clinical Midwifery.—Dr. Barnes, Tuesday, 4. Surgery.—Mr. Sydney Jones and Mr. Mac Cormac, Monday or Tuesday, Thursday, Friday, 5. Fee: single, 5*l.* 5*s.*; perpetual, 8*l.* 8*s.* Practical and Manipulative Surgery.—Mr. Croft, Monday or Tuesday, 5. Fee: single, 3*l.* 3*s.* *Summer Session.*—Botany.—Mr. A. W. Bennett, Tuesday, Thursday, Saturday, 8. Fee: single, 3*l.* 3*s.*; perpetual, 4*l.* 4*s.* Materia Medica.—Dr. Payne, Monday, Wednesday, Friday, 8. Fee: single, 3*l.* 3*s.*; perpetual, 4*l.* 4*s.* Practical and Manipulative Chemistry.—Dr. Albert J. Bernays, Tuesday, Thursday, Saturday, 11. Fee: single, 3*l.* 3*s.*; with 1*l.* 1*s.* 6*d.* for articles, etc. Comparative Anatomy.—Mr. C. Stewart, Monday, Wednesday, 11.30. Fee: single, 3*l.* 3*s.*; perpetual, 4*l.* 5*s.* Forensic Medicine and Hygiene.—Dr. Stone and Dr. Gervis, Monday, 2; Tuesday and Saturday, 12; Friday, 1. Fee: single, 3*l.* 3*s.*; perpetual, 4*l.* 4*s.* Mental Diseases.—Dr. Wm. Rhys Williams, Friday, 12. Fee: single, 2*l.* 2*s.*; perpetual, 3*l.* 3*s.* Practical Physiology.—Dr. Ord and Dr. John Harley, Monday, Thursday, Friday, 1.30 to 3.30. Fee: single, 3*l.* 3*s.*; with 1*l.* 1*s.* 6*d.* for expenses. Midwifery.—Dr. Barnes, Monday, Tuesday, Thursday, Friday, 3. Fee: single, 4*l.* 4*s.*; perpetual, 6*l.* 6*s.* Ophthalmic Surgery.—Mr. Liebreich, Monday, 4. Fee: single, 2*l.* 2*s.*; perpetual, 3*l.* 3*s.* Practical and Manipulative Surgery.—Mr. Croft, Tuesday, Friday, 4. Single, 3*l.* 3*s.* Admission fee to practice, and all the lectures, 40*l.* for the first year, a similar sum for the second, 20*l.* for the third, and 10*l.* for each succeeding year; or 105*l.* at one payment for unlimited attendance. Special entries may be made to any course of lectures, or to the hospital practice; and a modified scale of fees is arranged for students entering into their second, third, or any subsequent year. Fee for general subjects required for students of dental surgery for two years, 45*l.*, or instalments of 40*l.* for the first year, and 10*l.* for the second year. The hospital contains 569 beds, distributed as follows: medical, 180; surgical, 230; ophthalmic, 20; diseases of women, 20; venereal (women), 30; infectious diseases, 59; children under six years of age, 30. The museums of anatomy and pathology, and of materia medica and chemistry, are open to the students. Students have access to the library on payment of a fee of 1*l.* 1*s.* for the whole period of their studies. Laboratories, under the direction of the physiological and chemical lecturers, are provided. Instruction in practical pharmacy may also be obtained in the dispensary of the hospital, on payment of a fee of 5*l.* 5*s.* Private classes for students preparing for the preliminary scientific examination of the University of London, or for other examinations, are conducted by members of the staff, and embrace instruction in chemistry, natural philosophy, botany, and comparative anatomy.

UNIVERSITY COLLEGE HOSPITAL.—*Physicians.* Sir W. Jenner, Bart., K.C.B., M.D., F.R.S., Dr. R. Reynolds, F.R.S., Dr. Wilson Fox, F.R.S., Dr. S. Ringer, Dr. H. C. Bastian, F.R.S.: daily 1 and 2 P.M. *Obstetric Physician.*—Dr. Graily Hewitt, twice weekly. *Physician to Skin Infirmary.*—Dr. Tilbury Fox, Tues. 1.30; Sat. 9 A.M. *Assistant Physicians.*—Dr. F. T. Roberts, and Dr. W. R. Gowers. *Assistant Obstetric Physician.*—Dr. John Williams.

Surgeons.—Mr. Erichsen, Mr. Marshall, F.R.S., Sir Henry Thompson, Mr. Berkeley Hill, and Mr. Christopher Heath: daily 1 and 2 P.M. *Assistant-Surgeon.*—Mr. Marcus Beck. *Ophthalmic Surgeons.* Mr. Wharton Jones, F.R.S., and Mr. J. F. Streatfeild: Mon., Wed., Fri., 2 P.M. *Dental Surgeon.* Mr. Ibbetson: Wed., 10 A.M. *Holme Professor of Clinical Medicine.*—Dr. Wilson Fox, F.R.S. *Holme Professor of Clinical Surgery.*—Mr. Erichsen. *Assistant Teacher of Clinical Medicine.*—Dr. F. T. Roberts. *Surgical Registrar.*—Mr. Godlee. *Assistant Medical Officer in the Skin Department.*—Mr. Tweedy. *Resident Medical Officer.*—Mr. Meredith. Clinical Lectures are given by the Holme Professors and by the other Physicians and Surgeons; and pupils are specially trained in clinical observation and physical diagnosis. Fee: Hospital practice and clinical instruction, perpetual, 27*l.*; one year, 10*l.* Practical pharmacy, six months, 5*l.* 5*s.*; three months, 3*l.* 3*s.*

UNIVERSITY COLLEGE.—*Winter Session.*—*Principles and Practice of Medicine.*—Professor J. Russell Reynolds, M.D., F.R.S. Daily, except Mon., 9 A.M. Fee for the entire course, 6*l.* 6*s.*; perpetual, 9*l.* 9*s.* *Physiology.*—Jodrell Professor Burdon Sanderson, M.D., F.R.S.; Assistant Professor E. A. Schäfer; assistant, F. J. M. Page, B.Sc. Lond. Lectures on physiology on Mon., Wed., and Fri., 10, by the Jodrell Professor; on general anatomy on Tues. and Thurs. 10, by Mr. Schäfer. Fees for the entire course, 7*l.* 7*s.*; perpetual, 9*l.* 9*s.* A course of Practical Physiology and Histology, consisting of practical lessons in histology and the use of the microscope, and in physiological demonstrations, is given through the session; fee, 7*l.* 7*s.*; perpetual, 9*l.* 9*s.* Special courses of instruction in the use of the microscope and in the methods of histological work are given in the physiological laboratory. *Chemistry.*—Professor Williamson, Ph.D., F.R.S.; assistant professor, Charles Graham, D.Sc. Lectures daily, except Sat., 11. Exercises on Tues., Wed., Thurs., and Fri., 9 A.M. For the whole course of lectures, 7*l.* 7*s.*; perpetual, 9*l.* 9*s.*; for the organic course alone, 2*l.* 2*s.* Fee for the exercise class: for the course, 2*l.* 2*s.* *Anatomy.*—Professor G. Viner Ellis. Lectures daily, 12. Fee for lectures and practical anatomy: the entire course, 9*l.* 9*s.*; perpetual, to lectures, with three years' practical anatomy, 11*l.* 1*s.*; for practical anatomy, after the third year, every winter session, 1*l.* 1*s.*; for practical anatomy without attendance on lectures, for the three summer months, 3*l.* 3*s.* *Comparative Anatomy and Zoology.* Professorship vacant. Mon., Wed., and Fri., 3. Fee for comparative anatomy, 4*l.* 4*s.*; for zoology, 4*l.* 4*s.*; perpetual to both courses, 9*l.* 9*s.* *Principles and Practice of Surgery.*—Professor Marshall, F.R.S. Tues., Wed., and Fri., from 4 to 5 P.M. Fee for the course, 5*l.* 5*s.*; perpetual, 6*l.* 6*s.* *Practical Surgery.* This course consists of three distinct divisions, conducted by Mr. Berkeley Hill, Mr. C. Heath, and Mr. M. Beck. Fee for the entire course, 4*l.* 4*s.*, etc. *Dental Surgery.*—Lecturer, Mr. Ibbetson. Mon. and Thurs., 4. Fee, 2*l.* 2*s.* *Summer Session.*—*Botany.*—Professor Oliver, F.R.S. Daily, except Sat., 8. Fee for the session, 3*l.* 3*s.*; perpetual, 4*l.* 4*s.* *Midwifery and Diseases of Women.*—Professor Graily Hewitt, M.D. Tues., Wed., Fri., and Sat., 9 A.M. Fee for the session, 4*l.* 4*s.*; perpetual, 6*l.* 6*s.* *Practical Physiology.*—Professor Burdon Sanderson, M.D., F.R.S. *Pathological Anatomy.*—Professor H.

Charlton Bastian, M.D., F.R.S., Mon. and Thurs., 9 A.M.; Fri., 4 P.M. Fee for the session, 4*l.* 4*s.*; perpetual, 6*l.* 6*s.* *Medical Jurisprudence*.—Professor Maudsley, M.D., Tues., Wed., Thurs., and Fri., 10 A.M. Fee for the session, 3*l.* 3*s.*; perpetual, 4*l.* 4*s.* *Materia Medica and Therapeutics*.—Professor Ringer, M.D. Mon., 9; Tues., Wed., Thurs., and Fri., 10. Fee for the session, 4*l.* 4*s.*; perpetual, 6*l.* 6*s.* *Practical Chemistry*.—Professor Williamson, Ph.D., F.R.S. Elementary, Senior, and Summer Matriculation Courses. *Mental Diseases*.—Lecturer, W. H. O. Sankey, M.D. Mon., Tues., and Wed., 4 P.M. Clinical lecture at Camberwell House Asylum, Tues., 2 P.M. Fee 2*l.* 2*s.* *Operative Surgery*. Mr. C. Heath and Mr. M. Beck. Daily, at 8.30 A.M., or 3 P.M. Fee, including expenses, 4*l.* 4*s.* *Hygiene and Public Health*.—Professor Corfield, M.D. Tues. and Thurs., 4. Fee 1*l.* 1*s.* *Ophthalmic Medicine and Surgery*.—Professor Wharton Jones, F.R.S. Eight lectures, on Tues., 3 P.M. Fee, 1*l.* 1*s.*

WESTMINSTER HOSPITAL. — *Consulting Physicians and Surgeons*.—Dr. Kingston; Dr. Radcliffe; Mr. Lynn; Mr. Brooke; Mr. Barnard Holt. *Physicians*.—Dr. Basham; Dr. Fincham. *Surgeons*.—Mr. Holthouse; Mr. Cowell; Mr. Richard Davy. *Assistant-Physicians*.—Dr. Gibb; Dr. Sturges; Dr. Allchin. *Assistant-Surgeons*.—Mr. T. Cooke; Mr. T. Bond; Mr. Keene. *Obstetric Physician*.—Dr. Potter. *Assistant Obstetric Physician*.—Dr. Grigg. *Surgeon in charge of Ophthalmic Department*.—Mr. Cowell. *Surgeon in charge of Skin Department*.—Mr. Bond. *Surgeon in charge of Aural Department*.—Mr. Keene. *Dental Surgeon*.—Mr. Walker. *Medical Registrar*.—Dr. W. H. Allchin. *Surgical Registrar*.—Mr. W. R. Cheyne. *Winter Session*. — *Descriptive and Surgical Anatomy*.—Mr. R. Davy, Tues., Wed., Thurs., and Fri., at 12 A.M. Fees (including Dissections): One Course, 7*l.* 7*s.*; Two Courses, 10*l.* 10*s.* *Practical Anatomy*. Mr. Davy. *Demonstrators*.—Mr. Thomas Cooke and Mr. Verdon; *Assistant-Demonstrator*—Mr. Quicke. Fees: for Dissections only, Three Months, 2*l.* 2*s.*; Six Months, 3*l.* 3*s.*; for each subsequent session, 2*l.* 2*s.* *Chemistry*.—Dr. Dupré, Wed., Thurs., and Fri., 3. Fees: One Course, 5*l.* 5*s.*; Two Courses, 7*l.* 7*s.* *Physiology*.—Dr. Maclure, Mon., Wed., and Friday, 4 P.M. Fees: One Course, 5*l.* 5*s.*; Two Courses, 7*l.* 7*s.* *Practical Physiology and Histology*. Dr. W. H. Allchin, Tues. and Fri., 1 to 3 P.M. Fee: each Course, 4*l.* 4*s.* *Medicine*.—Mon., Wed., and Thurs., 3. Fees: One Course, 5*l.* 5*s.*; Two Courses, 7*l.* 7*s.* *Surgery*.—Mr. Cowell, Tues. and Thurs., 4, Fri., 3. Fees: One Course, 5*l.* 5*s.*; Two Courses, or one of this and the following Course, 7*l.* 7*s.* *Practical Surgery*.—Mr. Cowell, Tues. and Thurs., 4, Fri., 3. Fees: One Course, 5*l.* 5*s.*; Two Courses, or one of this and the above Course, 7*l.* 7*s.* *Diseases of the Skin*.—Mr. T. Bond, Thurs., 3, in February and March. Fee: each Course, 1*l.* 1*s.* Free to students of the Hospital. *Dental Surgery*.—Mr. J. Walker, Wed., 9.30 A.M. (in Oct., Nov., and Dec.). Fees: One Course, 2*l.* 2*s.*; Two Courses, 3*l.* 3*s.* Free to students of the Hospital, unless a certificate is required.—*Summer Session*. — *Materia Medica and Therapeutics*.—Dr. Sturges, Mon., Wed., and Thurs., 3 P.M. Fees: One Course, 3*l.* 3*s.*; Two Courses, 4*l.* 4*s.* *Botany*.—Mr. Holmes, Mon., Wed., and Fri., 9 A.M. Fees: One Course, 3*l.* 3*s.*; Two Courses, 4*l.* 4*s.* *Practical Chemistry*.—Dr. Dupré, Mon., Wed., and Fri., 10 to

12 A.M. Fee (inclusive of materials): each Course, 3*l.* 3*s.* *Midwifery and Diseases of Women and Children*.—Dr. Potter, Tues., Wed., and Fri., 4. Fees: One Course, 4*l.* 4*s.*; Two Courses, 5*l.* 5*s.* *Pathology and Morbid Anatomy*.—Dr. W. H. Allchin, Mon., 4, Tues., 9 A.M., and Thurs., 4 P.M. Fees: One Course, 3*l.* 3*s.*; Two Courses, 4*l.* 4*s.* *Forensic Medicine and Hygiene*.—Mr. Bond, and Dr. Dupré, Mon., Wed., and Fri., 3. Fees: One Course, 3*l.* 3*s.*; Two Courses, 4*l.* 4*s.* *Psychological Medicine*.—Dr. Sutherland. Fee: each Course, 1*l.* 1*s.* Pupils of the hospital free. *Ophthalmic Surgery*.—Mr. Cowell, Mon., 2.45. Fee: each Course, 1*l.* 1*s.* Free to students of the hospital, unless a certificate is required. *Minor Surgery and Bandaging*.—Mr. Cheyne, Wed. and Fri., 12. Fee: each Course, 1*l.* 1*s.* Free to students of the hospital, unless a certificate is required. *Operative Surgery*.—By the Lecturer on Anatomy. Fee: for One Course, including expenses, 4*l.* 4*s.* *Diseases of the Ear*.—Mr. Keene, Thurs., 9 A.M. Fee: each Course, 1*l.* 1*s.* Free to students of the hospital. *Comparative Anatomy*.—Dr. Carter Blake, Wed. and Sat., 11. Fees: One Course, 2*l.* 2*s.*; Two Courses, 3*l.* 3*s.* Free to students of the hospital, unless a certificate is required. *Natural Philosophy*.—Mr. Brooke, F.R.S., Tues., 3. Fee: each Course, 1*l.* 1*s.* Free to students of the hospital. Fees for hospital practice and lectures required by the Colleges of Physicians and Surgeons in London, and the Society of Apothecaries; one payment of 8*ol.*, or two of 4*ol.*, each at commencement of first two academical years. The payments may also be distributed in other ways, which may be learned on application at the hospital. The hospital contains 191 beds. Pupils who enter for the whole period of medical education are permitted to attend, without further fee, the practice of the Royal Westminster Ophthalmic Hospital, and that of the National Hospital for Paralysis.

TEXT-BOOKS.

In making the remarks on text-books which appear below, our object is simply to direct the student's attention to those works which he is likely to find most useful. To say always which book on any subject is the best that every student can use, is difficult, if not impossible. In some instances the characters of the books are very nearly balanced; again, some text-books may be better suited than others to the teaching of the school to which the pupil belongs; and further, one student may be able to learn better from a large book, and another from a small one. All the books, however, that we mention, may be safely trusted. In addition to text-books to be used as guides from the commencement of and throughout the study of any one department, we mention also several works from which instruction in various points may be obtained, although we do not recommend the student to peruse them through-out.

ANATOMY.

The old and well tried text-books of Anatomy, renewed from time to time by competent editors, continue to find favour with students. The well-known Quain's *Elements of Anatomy*, edited by Drs. Sharpey, Allen Thomson, and Cleland (Longmans & Co., 2 vols., 3*l.* 6*ol.*) holds, as it has long done, the first place. An old acquaintance, of late some-

what forgotten, Wilson's *Anatomist's Vade Mecum*, has lately reappeared, edited by Dr. George Buchanan, of Glasgow (J. and A. Churchill, 14s.) The work was in great favour with students a quarter of a century ago, and in its new form will no doubt be found useful by students who prefer a work of moderate size. A book which, we believe, has much favour in Ireland, is Messrs. Ledwich's *Practical and Descriptive Anatomy* (Dublin: Fannin; London: Longmans & Co., 12s. 6d.) Among manuals for the dissecting room there is in the first place Mr. Viner Ellis's excellent *Demonstrations of Anatomy* (Smith, Elder & Co., 12s. 6d.) There is also an useful companion to this book in the form of a series of coloured life-size plates, by Mr. Ellis and Mr. Ford (Smith, Elder, & Co., 6l. 6s.); but from its price this is a work which most students will be content to examine—which they may do with advantage—in the dissecting rooms or libraries of their schools.* Other good books for the dissecting room are Mr. Holden's *Manual of Dissections* (J. and A. Churchill, 16s.); and Mr. C. Heath's *Practical Anatomy* (J. and A. Churchill, 12s. 6d.) Mr. Thomas Cooke's *Tablets of Anatomy and Physiology* (Longmans) present highly useful analyses of the anatomy of various parts in a condensed form. For students of Osteology Mr. Luther Holden has in preparation a fifth edition of his work on *Human Osteology*, with plates (J. and A. Churchill); and a second edition of Mr. A. T. Norton's *Osteology for Students* (Baillière, Tindal, and Cox, one vol., 7s. 6d.; two vols., 8s. 6d.) has lately been issued. Other works which the student would do well to possess, are Mr. St. John Mivart's *Elementary Lessons in Anatomy* (Macmillan & Co., 6s. 6d.) in which the author not only gives the well known elementary parts of human anatomy, but renders their study more interesting by pointing out the more significant relations in the structure of man to that of other animals. Having touched on the subject of Comparative Anatomy, we would here mention as books which every anatomical pupil should study at some period, Professor Flower's *Introduction to the Osteology of the Mammalia* (Macmillan & Co., 7s. 6d.); and Professor Huxley's *Manual of the Anatomy of Vertebrated Animals*, (J. and A. Churchill, 12s.) In Physiology, the principal English work is Dr. Carpenter's *Principles of Human Physiology*, edited by Mr. H. Power (J. & A. Churchill, 28s.) There is also in preparation (by the same publishers) a fifth edition of Dr. Carpenter's *Manual of Physiology*, a work which has been in good reputation. Dr. Kirkes's *Handbook of Physiology*, edited by Mr. Marrant Baker (John Murray, 12s. 6d.) is an excellent epitome. There is also announced as in preparation, a translation, by Dr. Arthur Gamgee, of the *Elements of Human Physiology*, by Dr. L. Hermann of Zurich (Smith, Elder & Co.) Dr. Dalton's *Treatise on Human Physiology* (Smith, Elder & Co., 28s.), is an useful book.

Regarding Histology, much information will be found in the various works on Anatomy and Physiology, a section of Quain's *Anatomy* being especially devoted to the subject. A work to be consulted with much advantage is the excellent collection of essays on *Human and Comparative Histology*, edited by Professor Stricker, and translated by the New Sydenham Society. As, however, it can scarcely be

obtained otherwise than by three years' subscription to the Society, its possession will not be in the power of many students.

MEDICINE.

Of text-books on Medicine, there is no deficiency. In the foremost rank among them stands that classical work, Sir Thomas Watson's *Lectures on the Principles and Practice of Medicine* (Longmans & Co., 2 vols., 36s.). The late Dr. Tanner's *Principles and Practice of Medicine* (Renshaw, 2 vols., 38s.) gives a good summary of modern views and treatment. Dr. Aitken's *Science and Practice of Medicine* (C. Griffin & Co., 2 vols., 38s.) is a book which students preparing for University examinations can scarcely dispense with; and there is also announced to appear shortly, a text-book by the same author under the name of *Outlines of the Science and Practice of Medicine*. Other books to be recommended for the use of the student are, *Guy's Hooper's Physician's Vade Mecum*, edited by Dr. John Harley (Renshaw, 12s. 6d.)—a book in which some will find rather an excess of condensation; Dr. F. T. Roberts's *Handbook of the Theory and Practice of Medicine* (H. K. Lewis, 16s.); Dr. Barlow's *Manual of the Practice of Medicine*. The advanced student will do well to read—and possess if he can—Dr. Russell Reynolds's *System of Medicine* (Macmillan & Co., 25s. each volume) of which the last (fourth) volume is still unpublished; and Trousseau's *Lectures on Clinical Medicine*, translated for the New Sydenham Society by Dr. Bazire and Sir J. R. Cormack, of which copies can be had without subscription to the Society (H. K. Lewis, 5 vols., 35s.)

As elementary aids in the study of medical diagnosis, there are several good works which the student should possess; viz., Dr. O. Sturges's *Introduction to the Study of Clinical Medicine* (Smith, Elder & Co., 4s. 6d.); Dr. Barclay's *Manual of Medical Diagnosis* (J. & A. Churchill, 10s. 6d.); and Dr. G. Fenwick's *Student's Guide to Medical Diagnosis* (J. & A. Churchill, 6s. 6d.). A more extensive work on the same subject, fitted for advanced students and capable of being consulted with advantage by practitioners, is Dr. Da Costa's *Medical Diagnosis* (Smith, Elder & Co., 24s.). Dr. Gee's *Auscultation and Percussion* (Smith, Elder & Co., 5s. 6d.) is an excellent guide to the physical examination of the chest.

SURGERY.

As a text-book of operative surgery, Sir William Fergusson's *System of Practical Surgery* (J. and A. Churchill, 21s.) is a book which should be in the hands of every student. In its description of minor surgery, of fractures and dislocations, and of surgical operations, it is excellent. In pathology, however, it is deficient, and requires to be supplemented in this respect by other works. Mr. Erichsen's *Science and Art of Surgery* (Longmans and Co., 2 vols., 32s.) is an excellent practical work, and at the same time gives a sufficient outline of pathology. It is a very complete work, and is much used. A smaller work containing much useful information both as to pathology and practice, given in an easy style, is Druitt's *Surgeon's Vade Mecum* (Renshaw, 12s. 6d.), a long well known and trustworthy guide. Dr. Pirrie's *Principles and Practice of Surgery* (J. and A. Churchill, 28s.) represents

* A number of these plates appear in a reduced form in a new edition of Mr. Ellis's *Demonstrations*, which is announced.

the teaching of the Aberdeen school, and is much used by its students. Among other works of value which the student and practitioner of surgery may consult with advantage, are the late Professor Syme's *Principles of Surgery*, a book containing much valuable practical advice, the result of the author's experience; Mr. Spence's *Lectures on Surgery* (A. & C. Black), valuable for its practical instruction, illustrated by records of cases; Mr. Bryant's *Practice of Surgery* (J. & A. Churchill, 21s.); Mr. Holmes's *System of Surgery* (Longmans & Co., 5 vols., 5l. 5s.); Cooper's *Dictionary of Practical Surgery*, edited by Mr. Lane (Longmans and Co., 2 vols., 50s.); Mr. Gant's *Science and Practice of Surgery* (J. & A. Churchill, 24s.); and Dr. Gross's *System of Surgery* (Smith, Elder & Co., 70s.).

There are several very good guides, fitted for the use of the student who is being instructed in practical and operative surgery. Mr. Christopher Heath's *Manual of Minor Surgery and Bandaging* (J. & A. Churchill, 5s. 6d.); Mr. Annandale's *Surgical Aphorisms and Minor Operative Surgery*; Dr. Joseph Bell's *Manual of the Operations of Surgery* (MacLachlan & Stewart, 6s.), and Mr. Maunder's *Operative Surgery* (J. & A. Churchill, 6s.), are all books to which the student may trust for useful information. Mr. Bellamy's *Student's Guide to Surgical Anatomy* (J. & A. Churchill, 6s. 6d.) is a comparatively recent work, which will no doubt be found acceptable.

MIDWIFERY.

The most complete modern British text-book on this subject is Dr. Leishman's *System of Midwifery* (Macmillan and Co., 1l. 10s.); which, though some points of much importance are passed over without allusion or in an insufficient manner, is an excellent and well written work. Another valuable book of large size is Dr. Bullock's American edition of Cazeaux's *Treatise on Midwifery* (Philadelphia, Blakiston). For students who prefer smaller books, Dr. Alfred Meadows's *Manual of Midwifery* (Renshaw) will be found valuable. A translation by Dr. C. H. Carter of Schröder's *Manual of Midwifery* (J. and A. Churchill, 12s. 6d.) has lately appeared. Dr. J. G. Swayne's *Obstetric Aphorisms* (J. and A. Churchill, 3s. 6d.) is a little work which, though it cannot take the place of a text-book, will serve as an useful 'remembrancer' to the student and practitioner. The advanced student, and the practitioner also, of midwifery, should possess Dr. Robert Barnes's *Lectures on Obstetric Operations* (J. and A. Churchill, 15s.).

PATHOLOGY.

The best manual for the English student commencing the study of pathology is Dr. T. H. Green's *Introduction to Pathology and Morbid Anatomy* (Renshaw, 9s. 6d.). It is concise and clearly written, and well calculated to give the student a sound idea of the general principles of the subject. Beyond this, there can scarcely be said to be a text-book of English growth which is at the level of the time; although Sir James Paget's *Lectures on Surgical Pathology*, edited by Professor Turner (Longmans & Co., 21s.), will still be read by the advanced student as a text-book of surgical pathology, and as a model of scientific work recorded in clear and elegant language. A work which we would strongly recommend is Professor Billroth's *Surgical Pathology*

and *Therapeutics*, translated by Dr. Hackley (H. K. Lewis, 18s.). It contains a very complete summary of modern views, and the explanations are ample and clearly given. Dr. Rindfleisch's *Manual of Pathological Histology*, translated for the New Sydenham Society by Dr. Buchanan Baxter, is an excellent work, which the advanced student would do well to consult whenever he has an opportunity. Its possession requires two years' subscription to the society.

MATERIA MEDICA AND THERAPEUTICS.

As a manual of materia medica, Dr. Garrod's *Essentials of Materia Medica and Therapeutics*, edited by his successor in the chair of Materia Medica at King's College, Dr. Buchanan Baxter (Longmans & Co., 12s. 6d.) is a very useful book, though the material is much condensed. It treats, however, but briefly of therapeutics, and requires to be supplemented by other books on this subject. For this purpose, Dr. Ringer's *Handbook of Therapeutics* (H. R. Lewis, 12s. 6d.) and Dr. Waring's *Manual of Practical Therapeutics*, are to be recommended. Among larger works, which the student may use with advantage as text-books, are Bentley and Redwood's edition of Dr. Pereira's *Elements of Materia Medica and Therapeutics* (Longmans & Co., 25s.) and Dr. Macnamara's edition of Neligan's *Medicines* (Farman & Co., and Longmans & Co. 18s.). In Dr. H. C. Wood's treatise on *Therapeutics* (Smith, Elder & Co., 12s. 6d.) special attention is paid to the important subject of the physiological action of drugs. A *Manual of Materia Medica and Therapeutics*, comprising pharmacy and the physiological and therapeutic action of medicines, by Dr. Lauder Brunton, is announced as forthcoming by Smith, Elder, & Co. When it appears, it will, without doubt, be a book which should be in the hands of every student.

REVIEWS.

Science Primers—Physiology. By MICHAEL FOSTER, M.A., M.D., F.R.S. London and Cambridge: Macmillan and Co. 1874.

The importance of physiology, not only as a department of medical knowledge, but as a branch of general information, both useful and interesting, has become much more generally acknowledged, and the science is much more widely taught than it was when the reviewer first became acquainted, as a school-boy sixteen or seventeen years ago, with the *Text Book of Physiology for Schools*, published by Messrs. W. and R. Chambers, of Edinburgh. Increased demand for instruction has not only increased the supply, but greatly raised the quality; and excellent in its way though the text-book of Messrs. Chambers was, it could not stand comparison with those recently issued by Messrs. Macmillan, written as they are by Huxley and Foster, masters of the English language as well as physiologists of the greatest eminence. The primer of Foster is much shorter and is also simpler than the lessons of Huxley. It is intended for younger children, and will serve admirably as an introduction to the larger work. Instead of beginning, as less able men would have done, with a statement of facts which a scholar might get up by rote, but which would not interest him and would consequently

be soon forgotten, Dr. Foster first tries to awaken the child's curiosity and entices instead of drives him to learn. The introduction commences as follows:—"Did you ever, on a winter's day, when the ground was hard as a stone, the ponds all frozen, and everything cold and still, stop for a moment as you were running in play along the road or skating over the ice to wonder at yourself and ask these two questions—"Why am I so warm when all things around me, the ground, the trees, the water, and the air are so cold? How is it that I am moving about, running, walking, jumping when nothing else that I can see is stirring at all except perhaps a stray bird seeking in vain for food?" These questions Dr. Foster then proceeds to answer fully, clearly, accurately, and yet in simple language, insisting upon and repeating the most important points so that the scholar shall get them deeply impressed on his mind without being confused by a mass of details. Notwithstanding the small size of the book, it contains an account of the parts of which the body is made up; what takes place when we move; the nature of blood; how the blood moves; how the blood is changed by air; breathing; how the blood is changed by food; digestion; how the blood gets rid of waste matters; the whole story shortly told; how we feel and will. From this list, it is evident that the primer contains an account of the most important physiological processes; and, although it is intended for children, it may be read with great profit by those of any age who are attempting for the first time to acquire a knowledge of physiology.

T. LAUDER BRUNTON, M.D.

MISCELLANY.

AMONGST those who will probably be candidates for the Professorship of Zoology and Comparative Anatomy, now vacant in University College, London, are Mr. E. Ray Lankester, Dr. J. Murie, and Mr. H. Seeley.

DR. ALLEYNE NICHOLSON has been appointed to the chair of Biology and Physiology about to be established in the Durham University College of Medicine and Physical Science, at Newcastle-on-Tyne.

UNDER the Principalship of Monsignor Capel, a Catholic College is shortly to be opened in Kensington, in which the natural sciences will be taught without restrictions. A museum, a laboratory, and lecture-rooms are in readiness; and in the Educational department more than one appointment has already been made. Mr. St. George Mivart is to lecture on zoology during the winter months, and on botany in the summer. Mr. Barff is to lecture on chemistry.

THE INSECT WORLD.—An exhibition, interesting alike to the entomologist, the horticulturist, and the agriculturist, is now open in the orangery in the gardens of the Tuileries. This exhibition contains specimens of all known insects, those which yield products useful to man, as silkworms, bees, etc., as well as those which are sometimes so destructive to the crops and orchards, as the various kinds of beetles and caterpillars. Every sort of insect, from the smallest to the largest, may be studied here, as with true French system they are all labelled with explanatory descriptions, whilst the products of the useful insects and specimens of the ravages committed by the destructive ones are also shown in impressive contrast. Models of beehives, all kinds of contrivances for destroying the pests of the insect world, with all descriptions of horticultural inventions and appliances, help to increase the utility and interest of this exhibition.

DEATH OF DR. ANSTIE.—With much regret we announce the death of Dr. F. E. Anstie, physician to and lecturer on medicine at the Westminster Hospital. He died on Saturday last after an illness of three days, brought on by exposure to sewer emanations while examining the sanitary defects of a school at Wandsworth early in the week. Dr. Anstie had made some valuable contributions to medical literature on alcohol, neuralgia, and other subjects. His death will be felt as a great loss to the profession.

FEMALE APOTHECARIES.—The *Philadelphia Medical Times*, in an article on the new movement for obtaining employment for women, comments on the fact that no women are brought up in America to the practice of pharmacy. It advocates this business as a very suitable avocation for women who are properly trained to be careful and accurate; and dilates on its freedom from the objections which are usually urged against women entering the medical profession. The opening up of this branch of employment to women in England is observed with pleasure by our contemporary, which goes on to enumerate in detail the facilities given by the New Apothecaries Act to women desirous of becoming chemists and druggists.

A CHEQUERED CAREER.—The *Journal de Constantinople* records the death of a member of the medical profession, who had not always followed the peaceful paths of the healing art, but had helped in his day to find some occupation for the skill of the surgeon. Abdullah Bey, or Karl Hammerschmidt, for such was his real name, was born in Vienna, the son of an Austrian government official. In his early days he obtained an European reputation as an entomologist and writer on rural economy, but was diverted from these scientific pursuits by the Vienna revolution of 1848, in which he took a prominent part. He afterwards assisted Kossuth, as far as lay in his power, in the Hungarian struggle with Austria, fighting with the Magyars under General Bem. On taking refuge at Constantinople he was appointed tutor in the medical school; but, the Austrian Government objecting to his residence there, he removed to Damascus, where he spent several years as a hospital surgeon. After the Crimean War he returned to the Turkish capital and became Professor of Mineralogy and Zoology. His collection of insects, which gained a gold medal at the Paris Exhibition, was accidentally burnt. His death is attributed to his undertaking, at the age of seventy-four, some geological researches in Asia Minor.

NOTICE.

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Advertisements should be sent to the Office, 15 Waterloo Place, S. W., before Twelve o'clock on Tuesday morning.

The London Medical Record.

WEDNESDAY, SEPTEMBER 23, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

GUILLEMIN ON TYPHUS FEVER.*

From the fact that the origin of some cases and some epidemics of typhus fever has been traced to contagion, it has been by many most illogically concluded that all cases and all epidemics of the disease in question must be due to the same cause. In the interesting monograph before us, Dr. Guillemin has presented to us very important facts bearing upon this question—facts which, we believe, establish the doctrine that typhus fever may arise spontaneously in certain well-known unsanitary conditions; and that, in fact, in several remarkable instances it has actually arisen so. Dr. Guillemin commences by contesting the opinion of Professor Chauffard, expressed in a communication to the Academy of Medicine on October 15, 1872. This last-mentioned writer, reviewing the circumstances of the civil and military population in Paris and Metz during the late war, maintained that all the generally admitted causes of typhus epidemics existed in these towns in full force, and that notwithstanding there was no typhus. From this M. Chauffard not only denies the possibility of a spontaneous origin of typhus in France, but generally the possibility of the spontaneous origin of typhus epidemics. It would be sufficient, in opposition to this (says Dr. Guillemin), to show 'either that the conditions which render the spontaneous explosion of typhus inevitable neither existed at Paris nor at Metz, or that cases of typhus were observed in one or other of these two towns. One is not permitted,' he continues, 'in order to solve the question of the origin of an epidemic disease, to limit one's self to a study of the circumstances in which it has not appeared; for, even supposing M. Chauffard's assertions perfectly established—that is to say, first, that typhus was not observed either at Paris or at Metz; and, second, that all the conditions generally recognised as leading to its production were found combined there—that by no means authorises us to infer the necessity of importation. We may with as much reason conclude that, if the action of the habitual causes of typhus have not produced its ordinary effects, this is because it has been trammelled by circumstances which have escaped observation, and which ought to be sought after.' Dr. Guillemin maintains that the absence of typhus from Paris and Metz, even if true, which it was not, would not justify M. Chauffard's conclusions. It would have been necessary, in order to do this, says the author, 'to pass in review the epidemics of typhus upon the origin of which we

have positive information, to study the conditions in which they were produced, and to show that importation has been the condition *sine quâ non* of their appearance. This has not been done; indeed, it could not be done, seeing that there is a large number of epidemics of typhus in regard to which importation is in no way admissible.'

Passing in review the work of Pringle, whom our author quotes, as supporting the spontaneous theory of the origin of typhus in individuals and communities placed in conditions of organic deterioration, subject to overcrowding and general unsanitary conditions, he proceeds to show how these causes gave rise to typhus in the French and English armies in the Crimea.

The French troops were forwarded to the Crimea in September, 1872, and the first typhus epidemic appeared in the following December, at a time when the severe cold condemned the soldiers to suffer from overcrowding and deficient ventilation. Félix Jacquot thus graphically describes the condition of the French. 'After a prolonged stay in the mud of the trenches, after sentry duty, general labour, road-making, marches in deeply cut up and sinking fields, after having been soaked by rain and snow, the soldiers shivering, and very often wanting in changes of raiment, crowd themselves under the tents and huts, light if they can a meagre fire, and close hermetically all the openings with a perseverance and pertinacity against which the most pressing counsels and the most severe measures fail. The extreme uncleanness of the men, the fetid expirations, tobacco smoke, the evaporation from the wet clothing, all unite to make these narrow holes pestilential. Within is typhus, without is frost-bite, pushed often to complete sphacelus of the feet. The danger appears everywhere, but the worst is within.'

Almost at the same time typhus appeared in the English and Russian armies in the Crimea, and in the Russian and Turkish armies in Asia. At the end of 1855, the conditions which we have mentioned persisting with even increased force, a second epidemic of typhus broke out in the month of December, and raged with greater violence than the first. The weather was extremely cold, the thermometer falling sometimes to 7.5° or 11° below zero Fahr. The overcrowding was excessive, ambulances originally constructed for 200 or 400 men often containing twice or three times that number. It may be said, says Dr. Guillemin, that these circumstances only favoured the transmission of the disease to a large number of persons, and that the second epidemic was due to sporadic cases occurring from the time of the decline of the first. 'This opinion,' continues our author, 'becomes very difficult to defend if we compare the sanitary state of our army with that of the English army at the same time. During the first year of the war the English, for a long period unaccustomed to war, did not know in time how to take proper measures to place their army in the best possible hygienic condition; it was as badly nourished, as badly lodged, as ours; it was decimated by typhus. But, contrary to what happened with us, the English knew how to profit by the rude lessons of experience; they understood that prevention was more easy than cure; after having recognised the cause of the evil, they did not hesitate to make the necessary sacrifices to suppress it; their soldiers were lodged in well-constructed, well-aired, and well-heated barracks; there was an abundance of good food, and measures were taken to avoid overcrowding. What happened?

* *Les Origines et la Propagation du Typhus.* Par le Dr. J.-F. Guillemin, médecin-major des hôpitaux militaires. G. Masson: Paris. 1874.

The English army almost completely escaped the second epidemic, which affected the French army to a greater extent than the first.

Is not this experiment on a large scale the most striking demonstration which could possibly be given of the spontaneous origin of typhus? The two armies are placed side by side on the same soil; the one, badly fed, placed in deplorable conditions, subjected to the influence of overcrowding pushed to its most extreme limits, and counting in its ranks a large number of men exhausted by intestinal affections, scorbutus, and anæmia, is a prey to typhus; the other, well fed, placed in good hygienic conditions, provided with ambulances and hospitals in which the greatest care is taken to prevent overcrowding, is spared by typhus.

In 1861 MM. Léonard and Marit reported upon a severe epidemic of typhus which appeared in two villages in Algeria. The epidemic occurred in the month of February, and was strictly confined to these two villages, which were noted for their entire disregard of sanitary requirements. The houses, or rather hovels, consisted of a ground floor almost level with the soil; there were no windows, the only openings being the doors; the lanes and courts served as so many dépôts for dirt and every kind of excrement. Each of these holes would contain from eight to nine persons, with certain domestic animals in addition. The bare humid soil, tainted with ordure, formed the family couch. 'Here, then,' says Dr. Guillemin, 'is an epidemic with which importation had nothing to do. The importation could have taken place in but two ways: either the typhus had gained these two villages by propagating itself gradually from one locality to another—and then its tract could have been followed, inasmuch as it would have affected other populations before reaching the heart of Kabylie. Now the epidemic was quite circumscribed and perfectly localised in the two villages of Seddouck and Immoula; it had not been noted previously in any of the neighbouring villages. Or the typhus had been imported by isolated individuals coming from some locality more or less distant where it existed at the same time; this supposition is as inadmissible as the first, for typhus at that time had not been observed in any other part of Algeria.'

Dr. Guillemin says that the epidemic of Kabylie proves that importation is not so easy as some imagine; inasmuch as, notwithstanding that no precautions were taken to prevent importation or exportation, the surrounding villages remained free from the disease.

In the typhus epidemic which appeared in Algeria in 1868, the same unsanitary conditions which prevailed in the Crimea existed in full force. The first cases in general came either from overcrowded prisons and asylums, or from ambulances and hospitals into which the native sick had been admitted. In the spring of 1863, however, typhus had appeared in the town of Constantine, and continued there in a sporadic form 'pendant les années suivantes.' It was, so to speak, acclimatised there, so that the first notion of some physicians was to attribute the epidemic of 1868 to contagion from that of 1863. This view might be maintained if one ignored the fact that at the time ('même moment') when the disease exploded at Constantine it showed itself equally in a great number of localities of the two other provinces of Algeria, 'where typhus had never been observed till then either in the epidemic or the sporadic state.' For, at the time when that the

epidemic broke out in Constantine, it showed itself at Orléansville, Oran, Tlemcen, Mascara, Bel-Abbés, etc., localities very remote from the first, and which had no direct communication with it. Under these circumstances, one is compelled to admit that no relation could be established between the endemic of Constantine in 1863 and the epidemic of 1868.

In the second part of his monograph, Dr. Guillemin treats at length of the formation of typhus centres, of which, he says, the chief causes are overcrowding, especially overcrowding of the sick and wounded, uncleanness, starvation, and the association of persons suffering from diarrhœa, dysentery, erysipelas, gangrene, etc.; and certain facts authorise him to state that this may occur in the open air. In this division of his work he mentions that in the penitentiary of Ain-el-Bey the first case of typhus showed itself in an infirmary assistant, whose duty it was to dress suppurating wounds, at a time when there was not a single case of typhus in the penitentiary.

Speaking of Metz, Dr. Guillemin maintains, contrary to the received opinion, that there were undoubted cases of typhus in that town, and that, if it had not capitulated, these cases would have reached the dimensions of an epidemic. But the condition of Metz was by no means very bad. As to food, 'without doubt it was deficient, but those who have not looked into the matter closely form a false idea of the extent of this deficiency; they forget that butcher's meat never failed, and that the daily allowance of it had been even largely increased, since "dans les derniers temps" it reached 750 grammes, *i.e.* nearly two pounds; it is true it was horseflesh, but this remained during the whole time of sufficient quantity.' Dr. Guillemin informs us that bread only became scarce about fifteen days before the capitulation. At best then it was of passable quality, and, although diminished in quantity, strictly sufficient. Only in the two or three last days distribution of bread had entirely ceased, and then only the soldiers begun to suffer from hunger, although they still had meat.

'Many among them were very feeble, it is true, but they were not cachectic; no one had observed among them scurvy, as in the Crimea, nor that feeble condition of body due to starvation; there was neither epidemic diarrhœa nor dysentery. To sum up, in the army camped round the town there were no encumbrances, no great fatigue, no antecedent disease, and, consequently, no organic deteriorations; there was, indeed, insufficiency of food, but only for a fortnight or three weeks at most.'

In the last chapter of the second part of Dr. Guillemin's paper, he refers to the spontaneous origin of typhus in France, and gives several instances, such as the epidemic in the convict prison of Toulon in 1830; that of Strasburg prison in 1854; that of the prison of Nancy in 1854-55, etc. In none of these cases could importation be traced, 'although,' says our author, 'one may always, it is true, to explain the appearance of an epidemic, allege importation even when it is not possible to prove it; it is easy to say that the importation has passed unperceived; this is a convenient proceeding, but not a serious argument; importation ought, in my opinion, to be rejected when it is neither proved nor probable.'

From these statements we think it may be fairly concluded, that typhus is a disease which may arise spontaneously under certain well-known conditions;

and whenever these conditions exist in sufficient force. The assertion that the origin of the disease is always due to contagion is a pure assumption, for unless it be eternal, which no one has as yet affirmed it to be, it must have commenced some time; and the conditions which gave rise to its first appearance may have given rise to some of its subsequent appearances. And there is not only no proof that these conditions are now non-existent, but much that they are existent, and that they appear and disappear at certain periods, and always under the same or similar conditions. Indeed, to such an extent is this true that epidemics of typhus may be predicted, as Dr. Murchison says, 'with tolerable certainty,' or, as Jacquot says, 'typhus may be produced at will.' 'If,' says Dr. Murchison, 'in the case of every epidemic of typhus the first patient has contracted the disease from a person formerly infected, although it is impossible to trace the source, the contagion must needs be most potent and indestructible, which is the very reverse of the truth. The poison of typhus requires neither heat nor disinfectants for its destruction, but at once becomes inert on free admixture with fresh air. The opponents of the independent origin of typhus, in order to account for certain epidemics, are under the necessity of contending that the contagion exists in every part of the world ready to manifest itself under circumstances of overcrowding and under no other conditions; but for all practical purposes this is begging the entire question. If the poison remain passive for years so long as certain conditions are absent, but becomes active or potent so soon as these conditions come into play, it seems fair to infer that the appreciable conditions, and not an omnipresent and indestructible poison, constitutes the primary cause of typhus.'

ALEX. COLLIE, M.D.

THE PROPHYLACTIC TREATMENT OF CHOLERA. By PROFESSOR LEBERT OF BRESLAU.

When cholera first appeared in Europe as an epidemic, it was for a long time believed that its spread could be arrested by shutting up the disease. But when it heedlessly leaped over the lines of isolation, a general search was commenced for specifics. The number of agents of this kind which have rejoiced in an ephemeral glory is almost legion. The conviction now gradually gained ground that we possess no specifics for most of the acute diseases, including that class which arises from infection, but that prophylaxis, hygiene, dietetics, and proper symptomatic treatment form the basis of our therapy of acute diseases. So long as this, laboriously acquired, had reference to diseases with a comparatively light mortality rate it entailed no disadvantage, as the method of expectation within rational limits furnished more favourable results by its avoidance of useless attack upon a disease improperly regarded as an enemy than the employment of the older perturatory methods.

But we come now upon a disease, in Indian cholera, which in its well pronounced, typical, and perfectly developed form slays the half of all persons attacked; indeed, even a greater number falls at the extreme limits of life and under unfavourable conditions. It may be readily understood how painful it must be for the physician at the bedside to reconcile himself to

the scientific fact of the absence of every certain and specific means of cure. But neither science nor practice have lost anything by the recognition of this melancholy truth. For whole decades of years the efforts of physicians have been unweariedly directed to prophylaxis, to the arrest of the disease in its first and lightest phases, and to the connexion which so often exists between a thoroughly scientific etiology and an enlightened system of practice; though very great obscurity still hovers about all these subjects, nevertheless much that is valuable has already been acquired, and we may even now look forward to the time when this fearful Indian guest, that has become only too often and too much at home among us, will be very much checked in its devastations. We are not to be led astray, however, because so much here, as in other departments of medicine, is mere probability, and we may in the meantime console ourselves with the reflection that our labours and struggles in this direction belong to the highest and noblest efforts of the human mind.

The treatment of cholera is divided into prophylactic and therapeutic, the first of which will occupy most of our attention.

We shall discuss here in order the questions of general international prophylactic regulations, of general local regulations both before and during an attack, as well as that of individual protection.

International Prophylaxis is directed chiefly to prevent as much as possible the importation of cholera and its dissemination. Notwithstanding the assemblies of eminent men especially versed in the subject of cholera, neither official congresses as that of Paris nor private meetings like the earnest and excellent cholera conference held at Weimar have hitherto essentially assisted an international protection. Absolute exclusion is impossible under the present conditions of transportation, and the attempts made up to this time, though always but imperfectly carried out, have furnished satisfactory results in no direction. During the last thirty years cholera has often regardlessly penetrated through double and triple military cordons. Sea-quarantine, too, which is much more easily effected, and by which vessels from infected or suspected places are detained from five to seven days, or, when there is recent infection, as from near harbours, for weeks at a time, has in no way fulfilled the expectations entertained of it. Still quarantine of vessels should be by no means abolished. Great movements of troops cannot always be avoided in cholera times for technical reasons, notwithstanding their decidedly injurious influence. The fact of evasion of the sanitary regulations for seclusion is no more of an argument against their employment than the lack of uniformity in the period of incubation and the transportation of cholera-germs by the air and by lifeless objects. A ship may propagate cholera-germs through lifeless objects even after a quarantine of weeks' duration. It is not necessary travel and commerce, therefore, but assemblies of crowds, as at popular festivals, annual markets, processions, pilgrimages, etc., which should be forbidden and arrested during the prevalence of cholera. If the injurious effects so very often proven of the great oriental pilgrimages of the Mohammedans as of the Hindoos continue to be denied by incorrigible miasmatisms, all the restrictive regulations now in force remain perfectly justifiable. When military necessities do not demand it, the most extreme care should be observed regarding the movements of troops from infected or strongly threatened regions,

* Extract from an article in Ziemsen's *Cyclopaedia of Practical Medicine*, from *Ohio Clinic*, August 22, 1874.

and every temporary summoning of the militia from places and regions in which cholera prevails should be avoided. If but little can be accomplished by seclusion, certain really humane regulations can be compelled as provision for medical assistance at border and railroad stations, and places where many persons congregate from different regions. This provision should have proper publicity, and attention should be commanded to the facts that arrivals from suspicious places must be treated for every form of diarrhoea, no matter how light, that an outbreak of cholera may be prevented in this way, and that physicians and remedies and means of transport are at the public service at these places. If now disinfection, which is to be specially discussed later, be early and thoroughly practised in these places, the evils may be reduced to a minimum degree.

Prophylactic Regulations for a Threatened Locality.—Though proper regulations for recreation may not be possible here, and though later isolation of a great number of patients cannot well be brought about, nevertheless great good can be accomplished by energetic measures with the first imported cases. Travellers affected with the disease and other strangers should be perfectly isolated at once, of course with every regard to humanity. The place for such patients should be well ventilated and thoroughly disinfected, and disinfection should be practised at all near railroad and mail stations in any way suspected, best along the whole line between the infected and non-infected places. The first residents of the place attacked should also be isolated as much as possible, and their localities should be thoroughly disinfected from the very start.

The threatened place itself should be subjected to the most extensive prophylactic disinfection possible. This is a point of special value, as such a disinfection is infinitely more valuable than the usually imperfect method commenced in the course of the epidemic and then mostly only poorly carried out. Cholera hospitals should be timely erected for the reception of patients, and suitable vaults for the evacuations constructed, that centres be not formed for the wider diffusion of the disease.

The outbreak of cholera should not be awaited before the greatest cleanliness is secured for streets, places, yards, and houses. All stagnant waters should be drained away, excrement removed from the vicinity of houses, the refuse of the trades, especially the easily decomposing garbage of butchers, regularly carried away under police supervision. The results are vastly better when privy-vaults are cleansed before than during an epidemic. Thorough disinfection should follow the emptying of the vaults and cloacæ. Especial attention is to be devoted to this point, as accumulation and decomposition of the contents of privies and privy-pipes, which is allowed to go on even to overflowing and blocking up, is absolutely incredible. It is high time that the attention of the authorities were directed to the privies, privy vaults, cloacæ and wells in an entirely different way from that hitherto. The wells are too superficial in many cities they are often damaged, especially in cold winters, they are not inspected, and are mostly only repaired when the pumps are at fault, so that the water does not flow from above, without regard to the good or bad quality of the water. The bad location of wells in the neighbourhood of privy-vaults, stables, etc., allows an easy communication, in time, with the products of decomposition and the organic substances of the soil water as well as the contents of

privies in their vicinity. During the prevalence of an epidemic, the wells may thus, by atmospheric emanation as well as by drinking, bring the dangerous germs after intense multiplication into abundant contact with the human organism. The more generally care is taken to secure a good water-supply by conduits from without with isolation and supervision of the whole system of pipes, the more will this auxiliary to the spread of cholera and many other diseases be combated. The conduit system has the great advantage that it permits a great increase in the number of wells and cisterns provided with constantly flowing water. Wells with water of notoriously bad quality should be closed up before an outbreak of cholera, and that without the least anxiety. The dwellings of the poorer classes should be thoroughly inspected at the right time, and all crowding, uncleanness, and bad ventilation, be at once attended to. Places of refuge to which the inhabitants of decidedly unhealthy dwellings could be sent before the outbreak of the disease are very much to be desired.

The sanitary police in supervision of food should inspect the markets with most particular care, and confiscate with penalties all unripe and decaying vegetables, fruits, potatoes, etc.; the same care should be taken that only meat and its products, especially sausages, of good quality are sold. Every commencing decomposition is to be religiously watched. The spirituous drinks should be closely inspected in regard to quality, acidity, adulteration, etc., and the same if available for milk. Cities threatened with cholera should be early supplied with ice. The benevolent institutions for better nutrition, as the soup-houses, with attendants, should be organised in time. The same is true for the service of nurses and for the appointment of civic and medical committees, etc. Care should be taken to secure an abundant supply of material, beds with their appurtenances, dishware, etc. The apothecaries should be strongly forbidden to sell emetic and purgative medicines without a physician's prescription. Disinfectants, of which more in detail later, should be laid in in such abundance as to be furnished to the poor free of charge. Care should be taken to provide dead-houses to which bodies can be carried immediately after death.

General Regulations on the Appearance of Cholera in a Locality.—So soon as cholera has broken out in a locality the people should be fully instructed as to the proper means of protection. The greatest emphasis should be laid upon the necessity of cleanliness, of good ventilation and good drinking-water, which should only be used after having been subjected to thorough boiling. There should be no hesitation in entering into details in explanation of these subjects. Attention should be called to the highly injurious effects of food and drink of bad quality or in commencing decomposition, and especially to the danger of diluting milk with infected water. On account of its dilution the milk should always be boiled. There should be no limitation of the accustomed food, when of good quality, a very common mistake of the pure theorists, who write cholera articles for the people. To throw suspicion on fresh ripe vegetables, while at the same time roast meat and wine is recommended, would sound like mockery and derision, were it not somewhat excusable on the grounds of thoughtlessness and ignorance of the manner in which the mass of the people live.

Most especial instruction should be imparted as to

the paramount importance of the prodromal diarrhoea, and the even higher necessity of proceeding against it as quickly and effectually as possible. The people should be taught also the easy transition of diarrhoea into cholera, the contagion from cholera excreta, and especially from cholera linen, for the disinfection of which rules will be given later. Easily comprehended information should be furnished also on the subject of disinfection. All cases of diarrhoea should be referred to physicians and medical bureaux, but warning should be given against the knights with 'sure cures,' as well as every form of charlatanism. A well-organised system of benevolence will regard not only the food, but also the sleeping-places, the beds, the fuel, etc., of the poorer classes, and secure the gratuitous provision of the tried remedies for diarrhoea, means of disinfection, etc. The number of physicians for the poor should be increased according to necessity and assistants as desired. Fixed bureaux for medical service, day and night, should be organised and provided with the necessary means of treatment and transport. Committees of physicians and civic officers should hold frequent consultations in common. House-visits among the healthy should be made also in wide extent by laymen for the purpose of instruction as to the means of quickly acquiring the proper remedies and treating the diarrhoea according to directions previously given (the visitation system). In manufactories, schools, infirmaries, barracks, prisons—in a word, wherever numbers are crowded together—daily inquiries should be made concerning health and *especially diarrhoea*, and action taken accordingly. This was a system that gave very favourable results in Paris in 1849. The sanitary police in control of the great numbers of individuals in all public or private situations may greatly assist in the general efforts by rigid supervision in regard to cleanliness, ventilation, drinking-water, food, privies, disinfection, transportation of the sick, vacation of pestilential centres, etc.

Cholera hospitals should be so situated as to be easily reached, but yet not in the midst of great centres of population. In middle and south Europe barrack-hospitals may also be erected. When possible, the lighter cases, as of diarrhoea and cholera, should be separated from the grave cases, and convalescents likewise. Transportation into the hospital is best effected by portable baskets, and care should be taken to secure the provision of a sufficient number of baskets, carriers, and attendants in season. Such provision will prevent the necessity of too great effort on the part of a few. These baskets likewise should be disinfected repeatedly, as also the dishes, night-vessels, beds, washing-rooms, etc., in the hospital. The utmost cleanliness and the most abundant and frequent ventilation are absolute necessities. The discharges must be quickly removed, mixed with carbolic acid or carbolised soda, and buried, or, according to Küchenmeister, mixed with sawdust and burned. Cholera patients are not to be put with other patients, and the cholera apartment should be as sequestered as possible, well ventilated, and carefully subjected to frequent disinfection.

If a centre of the disease be in process of development, or if it be already developed, all experience teaches that isolation is not only impracticable, but even useless. No matter how great the precaution, we only succeed in shutting up the wolf in the stall of the sheep. Vacation steps in now in lieu of isolation. When the anti-hygienic conditions are de-

cidedly bad, vacation may be effected by persuasion, or, if necessary, by force, which should be employed also, when the danger is great, even among the better classes. Of course care must be taken that the places of refuge are spacious and suitably constructed. Such was the case with the Klingenthal garrison in the Basel epidemic of 1855, where the results were excellent, as also with the music-hall in Zürich in 1867.

Besides the disinfection store-houses, whence disinfecting agents can be supplied to the poor free of charge, there should be large chambers where the washing, clothes, bedding, and other materials in contact with cholera patients can be subjected to disinfection under supervision of the sanitary police. But the materials to be purified should not be left long in heaps in the open air. When several cases of cholera have successively occurred in the same house, the wells, and especially the privies, should be closed up. But it is necessary in such cases to establish the fosses-mobiles system, as in Zürich in 1867, where these precautions seemed to have been attended with very good results. The contents of the night-vessels should be emptied into buckets in the halls and yards, and these buckets should be changed daily after thorough disinfection. If the privies cannot be closed they should be regularly disinfected under police supervision.

Disinfection of the linen before washing is absolutely necessary. This may be first accomplished in dry ovens or by fumes of sulphurous acid, then it should be thrown into boiling water and macerated before delivery to the washwoman, a point to which we shall return again.

When an epidemic is positively developed, regular daily bulletins should be published as to its exact status. Concealment or optimistic, therefore untrue, reports are decidedly injurious, while definite statements from the authorities quiet public apprehension. Dead-houses, to which bodies are to be carried as quickly as possible, should not only be properly arranged, but special attention should also be given to funerals. Great processions and long-continued ceremonies may be followed by injurious consequences. The authorities should also provide a sufficient burial corps.

(To be continued.)

REVILLOUT ON THE DIFFERENTIAL DIAGNOSIS OF DISEASES OF THE STOMACH.

In the *Gazette des Hôpitaux* for August 22, 1874 (no. 97), there is an article by Dr. Victor Revillout on the subject of gastric diseases. He complains, not without reason, that medical books are often too much like treatises on law—too systematic and too critical. Even Trousseau was often more of a critic than a clinical teacher, and Cruveilhier, in his last memoir on diseases of the stomach, was not free from this tendency. The latter was the first to describe simple ulcer of the stomach, and he maintained that it was generally possible to diagnose it from other gastric affections. Trousseau, in his clinical lectures denied this. In the works of both these great authorities, we meet with very rash assertions in close association with very precise and accurate descriptions. For example, Cruveilhier points out very precisely the characters of the pain which extends from the epigastrium to the spine at the same level, in gastric ulcer. But, whilst fully cognisant of the fact that the pain, both in its seat and in its character, closely resembles

that met with in gastralgia without ulceration, he sought in opium a criterion between the two affections. According to him, opiates promptly relieve the pain in simple gastralgia, whilst the gastric ulcer with gastralgia is unrelieved by these remedies. This was really a great delusion; for the truth is, that the pain, with or without ulceration, is sometimes quickly relieved by narcotics; whilst in other cases large doses prove ineffectual for this purpose. Trousseau was quite right in asserting this; but he was wrong in concluding from the failure of this test, that simple ulcer and gastralgia must necessarily be confounded together in practice. In the same way Cruveilhier, wishing to distinguish ulcer from cancer, asserted that in cancer there was no pain, properly so-called, originating in the nerves, but only suffering produced by muscular contractions, like those of the uterus in labour; depending upon the efforts of the stomach to overcome the obstruction set up by the tumour to the passage of alimentary substances. Although it often happens in cancer of the stomach that the pain is very slight, Trousseau had an easy task in showing that this was not invariably the case. But he went too far when he declared that simple ulcer and cancer were alike in their symptoms, so long as no tumour is discoverable. According to Trousseau, the only case in which we can make a differential diagnosis is when we discover a tumour in the parietes of the stomach. We shall see presently that such a tumour may sometimes originate in a simple ulcer of the stomach. Cruveilhier has, however, not recorded such cases; and Trousseau makes no mention of them. Are we to conclude, then, that no diagnosis is possible between different affections of the stomach? Are we always to be wandering vaguely in our practice, and never recognise the true nature of these affections at the bedside? The observation of a large number of hospital cases of stomach-affections leads Dr. Revillout to a very different conclusion. He says, justly, that the symptomatic physiognomy, or totality of symptoms, in cancer and in simple ulcer of the stomach, is in general extremely different. He gives two typical cases of cancer of the stomach. When the cancer is limited to the stomach itself we do not generally meet with dorsal pain, even when vomiting has been going on for some time, and the patients suffer acutely. This is true, at least for the major part of the duration of the disease.

For instance, there is a woman aged forty-six, in M. Potain's wards (no. 13, Salle Ste. Anne, Hôpital Necker), admitted July 9, 1874, who has been ill for six months, and exhibits in a very striking degree the characteristic straw tint (*la teinte jaune paille caractéristique*). This woman, before admission, vomited almost every day, sometimes twice a day, for several months; sometimes she merely vomited a glairy fluid, and sometimes the food she had taken. No other explanation of the cachectic colour, except the cancerous diathesis, could be entertained. Her feebleness and emaciation were even then very striking. Nauseated with everything, she could take no food without great effort, and whatever she took produced the feeling of a heavy weight on the stomach. Pressure in the epigastric region was very painful. But there was no painful spot over the vertebral column, nor in the intercostal spaces, and careful interrogation of the patient failed to prove that she ever suffered from any dorsal pain at any period of her disease.

Another patient, equally cachectic and equally emaciated, has been an inmate of La Charité Hospital (no. 8, Salle St. Ferdinand) since April 7, under the care of M. Rigal for M. Bernutz. This man, a mechanic, aged sixty-seven, has been ill for seven months, and has a tumour of considerable size in the epigastric region, on the right side. He has vomited ever since the appearance of this tumour. He had previously experienced very painful cramps in the stomach, and since the vomiting began these cramps have been almost continuous. He suffers day and night from his stomach. The pains are often so violent that he compares them to tearing asunder. Under careful régime of milk-diet with a little Bordeaux wine, and soup in the evening, the sickness has diminished, and for the last two months he has been almost free from vomiting, but his epigastric pains are almost as bad as ever. Yet this man has never had any pain in the back, and there is no point between the spinous processes sensitive to pressure. On this point his answers have never varied.

We are next presented with three typical cases of simple ulcers of the stomach.

In bed no. 13, Salle St. Vincent, at the Charité Hospital, under the charge of M. Woillez, there is a woman aged thirty-six, admitted on April 5, whose illness dates from January 10. Up to this year she had always enjoyed most perfect health. She said she had never had an hour's uneasiness, much less neuralgia or indigestion, or any tendency to illness. On the day named she breakfasted, with good appetite as usual, and went to work at the sewing machine in a house of business where she had long been employed, when all at once she fell down unconscious. Her syncope lasted half an hour, and on recovering she vomited a bowlful of black blood. Since then, she has always vomited more or less blood. These attacks of vomiting are preceded by acute pains, which generally last about an hour, and extend from the epigastric region to a point in the spine on exactly the same plane. She compares these pains to draggings which tear her flesh. Pressure on the epigastric region gives great pain; but she bears pressure on the spine very well, although the pain is referred there. It may be as well to remark, that since the hæmatemesis and the impaired nutrition, this patient has become highly nervous. She was not so before. There is now a certain degree of anæsthesia [*sic*] all over the body; there have been four well marked hysterical attacks; she complains of constant headaches. Lastly, there is a hyperæsthetic spot on the right side of the thorax, near the margin of the hypochondrium.

Another woman (in no. 16 bed, Salle Ste. Madeleine) at the same hospital, under the care of M. Brouardel, never having had hæmatemesis, is not hysterical. Otherwise her history resembles the case above. Her age is forty-three, she is a sempstress, and has now been ill seventeen months. Till then her health was excellent; living with her parents, who were fairly well off, she had never suffered privations. Her character is cool and collected (*posé*). Not easily impressible, she is not lightly moved to tears, nor is she noisy in laughter. She has always been regular, and free from nervous attacks. All at once, having breakfasted one day as usual, she felt suddenly an acute pain in her stomach and back, and then she vomited all she had eaten. After this day she could take no food without being

attacked sooner or later with vomiting, generally of food, sometimes of bile; the longer the vomiting is delayed, the more acute her pains. These often last the whole night, and she compares them to dragging, tearing, and sometimes to being cut with a knife. These pains extend from front to back, from the epigastric region, a little below the xiphoid cartilage, to the dorsal region, about the three first lumbar vertebrae. There is no other painful spot in the spine, either higher or lower.

At the Hôpital Necker (Salle St. Ferdinand, no. 11) we find an analogous case under the care of M. Delpech, admitted on July 28. The man is thirty-eight years of age, and is an engraver; he has been ill about seven months; he had always been quite well, till one evening after his dinner he vomited food for the first time. For some days the same happened after each evening meal. He thinks he did not suffer much then; but about a month after he vomited a basinful of blood. Then he felt acute pain, which extended from a point in the epigastric region about two fingers' breadth below the xiphoid cartilage towards a corresponding point in the back, about the first and second lumbar vertebrae. He compared this to the pain of a vice bruising the tissues. He was admitted first at the Hôpital St. Antoine, where he was treated by M. Cadet de Gassicourt for a simple ulcer of the stomach; he remained there about six weeks, during which time he vomited blood on several occasions; but under the influence of a milk-diet he so far recovered that he believed himself cured, and asked to be discharged to resume his business. Some days after the vomiting recurred, without blood however, and then he was admitted under M. Delpech's care, as described above. He was then dieted, and the vomiting ceased on the second day of treatment. In this case it is to be noted that there was not much pain so long as the vomiting was not severe. When it became so the pain, instead of being confined to the epigastrium almost invariably extended to the back.

The next case is one of ulcer of the stomach simulating cancer. We have had two distinct types of gastric disease in the cases previously narrated. In both there was vomiting, but one kind had no pain in the back; the patients complain of the stomach only, and there their sufferings are very acute, but there is no tendency towards the dorsal pain; these are the cases of cancer. The others have dorsal pain quite as severe as the epigastric, and on the same plane with this—or to speak more accurately, the two pains are really one and the same—and the patients compare the pain to dragging, tearing, or bruising; these suffer from ulcer of the stomach. Unfortunately all our cases are not so simple or so easy to diagnose. Sometimes, on the contrary, we meet with complications well calculated to lead us into error. But in such cases it is highly important not to lose sight of essential facts and first principles. When symptoms which appear contradictory are associated, they should at least cause us to hesitate and suspend our diagnosis, waiting for the judgment of time. We have a striking instance in the following case. On January 12, 1874, a woman, aged sixty-three years, entered the wards of M. Brouardel at the Charité (no. 22 bed, Salle Ste. Madeleine). She had for some time vomited black stuff, and shortly afterwards a hard, uneven tumour, about the size of a hen's egg, and not very sensitive to pressure, was discovered a little above the navel. Her stomach

was dilated, and her skin had an icterode cachectic coloration, like that of cancer. She stated that about four months previously, she had felt violent pains in the stomach. She soon began to vomit, first food, and then the vomit changed its character to a sooty or coffee-ground appearance. The gastric pain, starting from the epigastrium, and extending to the spine at the same level, had continued to grow worse. M. Revillout often asked the patient about this pain, and her answers were always consistent. The hæmatemesis continued; food was rejected soon after being taken, milk only being tolerated. Her emaciation increased rapidly; the sooty vomitings were more frequent; she was obstinately constipated; her appetite diminished, her weakness increased. From the beginning of July all the symptoms were exaggerated, and she died exhausted on the 21st of that month. At the necropsy, at which M. Cornil assisted, the pyloric end of the stomach was found indurated, and formed the tumour. The contiguous parts, epiploon, and transverse colon, were firmly adherent, and were much indurated. On opening the stomach, an ulcer was found at the pylorus, about 1½ inch in length, following the course of the pyloric canal. This ulceration was truly cup-shaped. The mucous membrane was lost at its edges, and its floor was formed by the transverse fibres of the stomach, which were themselves wanting at its deepest part, where the longitudinal muscular fibres became visible. This ulcer was solitary. Around it the hypertrophied walls of the stomach formed a tumour, which had no characters of cancer, either naked-eye or microscopic. It cut firmly, was hard, smooth and shiny, but no juice could be squeezed from it. In this case, the diagnosis of cancer of the stomach seemed reasonable. There was the tumour, and the icterode cachexia which are deemed so characteristic. It is true that hæmorrhagic [anæmic] cachexia may simulate the cancerous. But how could we explain the tumour? In an appendix to his memoir, read at the Institute in 1856, Cruveilhier speaks of a case lately noticed by him, *post mortem*, in which a simple ulcer of the pylorus had produced around it a thickening sufficiently marked to simulate a tumour on percussion. But no such case is considered in the propositions which summarise this memoir. For Cruveilhier as for Trousseau, a tumour meant cancer, and that only. Meanwhile this patient was not cancerous; her dorsal pain was therefore not exceptional, but confirmed the rule given above, for this, and this only, allowed the truth to be guessed at—that we had to deal with a simple ulcer, and not with cancer of the stomach. [The reporter thinks these cases so interesting in themselves that he has but slightly abridged them, or the comments of M. Revillout. He thinks, however, that he has met with exceptions to the universality of the dorsal pain, in cases of simple ulcer, proved to be such *post mortem*; indeed, with cases where there has been scarcely any pain at all.—*Rep.*] W. BATHURST WOODMAN, M.D.

KOLBE ON THE ANTISEPTIC PROPERTIES OF SALICYLIC ACID.

The physiological action of this substance has been little studied, though its physical and chemical properties are pretty well known. From the fact that it can be readily composed from carbolic acid and

carbonic acid, and that, on heating above the boiling point, it is decomposed into these two substances, Professor Kolbe, of Leipzig, was led to expect that, like carbolic acid, it would oppose processes of fermentation and putrefaction, and prove a good antiseptic. Along with Professor Thiersch, he made some experiments in this direction, which he has recently described to the Saxon Academy (See Dinger's *Polytechnisches Journal*, 2nd July number).

To ascertain how salicylic acid acted on ferments, he first dissolved some amygdalin in water, mixed with the solution a small quantity of the acid, and added an emulsion of sweet almonds. In a quarter of an hour, by which time a second mixture of almond emulsion and amygdalin, without salicylic acid, smelt strongly of bitter almond oil, the mixture containing the acid had not the least trace of such a smell. If the proportion of salicylic acid be very small, the smell will appear after some hours; but, with even a small quantity, no smell will be perceptible after twenty-four hours.

Mustard-seed powder, which in lukewarm water soon gives a strong smell of mustard oil, gives no such smell if a very little salicylic acid be previously mixed with it.

If a solution of grape sugar be mixed with a little salicylic acid (a thousandth at the most), yeast has afterwards no action, and a sugar solution already in fermentation ceases to ferment when a small quantity of the acid is added.

[Details of such an experiment are given.]

Again, some Leipzig beer of excellent quality was divided among several wide glass beakers (1,000 grammes to each), and kept fourteen days at a temperature varying between 68° and 75° Fahr., the vessels being covered with loose paper. To one vessel was added (and mixed with the beer) 0.2 gramme of salicylic acid; to a second, 0.4 gramme; to a third, 0.8 gramme; to a fourth, 1.2 gramme; in another glass the beer remained unmixed. This last began at the end of the second day to deteriorate, and became coated with a layer of fungus. In the vessel with 0.2 gramme of salicylic acid, the fungus vegetation commenced on the third day; in the vessel with 0.4 gramme, on the fifth; in that with 0.8 grammes on the tenth; while the 1,000 grammes of beer to which 1.2 grammes acid had been added, did not even after twelve days show any fungus vegetation. Thus a thousandth of salicylic acid, added to beer, suffices to preserve it from injury through fungus growth.

Next, fresh and pure cow's milk, with 0.4 per cent. of salicylic acid added, and left in an open vessel, at a temperature of 64.4° Fahr., was thirty-six hours later of curdling than an equal quantity of the same milk beside it, which was without salicylic acid. The addition of a little more salicylic acid delays the souring and coagulation still longer. The milk continues to taste well; the taste of the small amount of acid is not perceptible.

Some newly passed urine was divided into two portions, and kept several days in separate vessels. A little salicylic acid having been added to one portion, this was found on the third day still clear and free from the smell of ammonia; while the other portion was already far gone in decomposition and smelt strongly.

Fresh meat, rubbed with salicylic acid, will keep for weeks, in air. The author prepared large quantities of beef and mutton with the acid, put them in a

large covered vessel, and a month afterwards he found them still quite fit for cooking. Most of the salicylic acid can be removed by washing, before the use of the meat. The remaining portion has a not unpleasant sweet taste, but it is hardly perceptible.

Professor Kolbe further states that he put hen's eggs, fresh laid in March and April, in an aqueous solution of salicylic acid, and let them lie about an hour in it. After drying, in air, they were laid in a box filled with chaff; in a second box was placed similarly a fresh egg, which had not been impregnated with acid. The eggs will be examined after six, nine, and twelve months have passed, and the results communicated.

Professor Thiersch made some experiments in the Leipzig Hospital as to the antiseptic action of salicylic acid, and its use in surgery. He says that when strewn (either by itself or mixed with starch) on contused wounds not yet cleaned, and on scurfy gangrenous surfaces, salicylic acid destroys, for a long time, the putrid odour, without any inflammatory action of importance. In solution of one part of salicylic acid, three parts of phosphate of soda, and fifty parts of water, it favours the coating over of granulation-surfaces. As to its action on fresh wounds, the following data are communicated. During the operation, the wound is kept under a spray cloud of salicylic acid in water (one in 300). The dressing of the wound consists of wadding, impregnated with salicylic acid in the crystallised state. The wadding is moistened with salicylic acid in water (one in 300), as also the strip of muslin by which it is held. Afterwards, a continuous dripping of the acid solution on the bandage, about eight drops in the minute, is maintained. After an amputation of the femur on April 27, under such treatment, the patient experienced no pain, nor swellings, nor fever. The first renewal of the dressing was on the sixth day. The secretion in the wound during these six days was without smell. With equally good results, Dr. Thiersch performed some other amputations. He is of opinion that salicylic acid has all the advantages of carbolic acid, without its inconveniences.

ALEX. B. MACDOWALL.

MEDICINE.

ALLBUTT ON A CASE OF MEDIASTINAL SARCOMA, SIMULATING 'CALLOUS MEDIASTINO-PERICARDITIS.'—In the *British Medical Journal* for September 5, 1874, Dr. Clifford Allbutt has recorded a very interesting case of mediastinal sarcoma, which in its clinical features and *post mortem* appearances presented some resemblance to the cases of 'callous mediastino-pericarditis,' described by Kussmaul in the *Berliner Klinische Wochenschrift*, (nos. 37, 38, 39, 1873), and of which an abstract was given in the LONDON MEDICAL RECORD, December 17, 1873. The patient was a girl, aged sixteen, of delicate appearance, who had had no previous illness, save an attack of small-pox when young. A sister had died of phthisis, aged twenty-one, but her parents were alive and well. The girl caught a cold on 'Shrove Tuesday,' which was followed by cough and shortness of breathing. For a month previously to her admission, she could not lie down on account of dyspnoea and palpitation. She had had no pain. On admission the superficial veins of the neck were prominent, and she had the aspect 'of one suffering under the

pressure of an acute disease ; she had the præcordial anxiety, the pallor, the distress and the fear of movement which are often seen in pericardial effusion. There was considerable dulness in the middle of the chest, but the distribution of the dulness was not like that of pericardial effusions. 'Taking the base line of dulness from the lower edge of the liver and heart, it extended upwards all over the front of the chest, leaving only a triangle of resonance at the upper and outer corners. The two outer thirds of each clavicle might be taken as the upper side of an equilateral triangle of comparative resonance on each side. All beside was dull, and the dulness reached about an inch beyond the mammary line on each side. On the left side of the chest, however, there was another district of dulness continuous with the former, and clearly corresponding to a small pleuritic effusion. The pulse was small, rapid, irregular, and sometimes intermittent. The respiration was very shallow and frequent ; so much so, that it was impossible to say whether inspiration had any effect upon the fulness of the jugular or upon the radial pulse.' The left pleura was tapped, and fourteen ounces of clear fluid withdrawn by the aspirator. The patient, however, died fifteen minutes after the operation. The 'paradoxical pulse' was not noticed, on account of early death. At the necropsy the following were the appearances. 'There was enormous dilatation and thickening of the pericardium, due to a firm yellowish homogeneous-looking growth, occupying the anterior mediastinum and reaching above to the thyroid on the left, and to the diaphragm below on the right. The chief mass of the tumour was situated in front of and around the base of the heart, completely embedding the great vessels at the root of the neck and the arch of the aorta, and closely adherent to them, but not seemingly contracting their calibre. The tumour blended insensibly with the pericardium. In front it had evidently been adherent to the sternum and costal cartilages. Below, the adherent diaphragm showed several nodules of similar structure. The enlarged pericardium formed a nearly globular sac, flattened below where it rested upon the diaphragm, and about eight inches across. Its lining was more opaque than natural. The heart was small, flabby, and pale. Along its anterior borders and near the base were several nodules of the new growth, on incision evidently infiltrating the muscular tissue. The lungs, which had evidently been laterally displaced, were small and almost airless, with the exception of their apices. Around their roots, and extending along the vessels and bronchi, and the edges of the lobes for a short and variable distance, was the same sort of tissue as in the mediastinum. The microscopic appearance of the growth was that of small round cells, with no fibrous stroma, and very little intercellular substance. A section from a nodule upon the heart showed the same material infiltrating the muscular fibres ; and in one from the root of the lung, the pulmonary tissue was infiltrated with similar small cells.'

[Dr. Allbutt's case, in the opinion of the reporter, corresponds pretty closely with the class of cases designated by the terms lymphadenoma, lymphosarcoma, or Hodgkin's disease. A very similar case to his is minutely described by Dr. Risdon Bennett, at p. 148 of his book *On Intrathoracic Growths*, and one not unlike it has come under the notice of the reporter and is published in the *British Medical Journal* for September 19, 1874. Dr. Allbutt has omitted to

mention the condition of the lymphatic glands, spleen, etc., in his case, and it would be interesting to know the state of these organs. In the reporter's case there was enlargement of the spleen and mesenteric glands, in addition to the mediastinal growth. The case was also complicated by bloody pleurisy.—*Rep.*]
J. B. BRADBURY, M.D. (Cambridge).

EYSELEIN ON HICCUP OF NEARLY FOUR WEEKS' DURATION AT THE COMMENCEMENT OF CANCER OF THE STOMACH.—The *Berliner Klinische Wochenschrift*, no. 30, contains a paper by Dr. Oscar Eyselein, of Blankenburg, on this symptom. The patient, a master bookbinder, aged forty-six, had both parents living and healthy, and his grandparents both reached nearly ninety years of age. His four sisters were healthy. He had suffered since October, 1872, from a febrile attack of bronchial catarrh, with much expectoration, and considerable disturbance of his digestive functions. These symptoms lasted, with partial recovery, till the spring of 1873, when his general health became satisfactory, and the catarrhal symptoms almost entirely vanished. There were no other objective signs of disease. His recovery was slow, although he took a good deal of out-door exercise. At the end of May, without any obvious cause, he was attacked with hiccup ; at first a simple heaving, afterwards, as the patient phrased it, 'in double strokes.' This lasted all day, all night, and the next day, and was not relieved by an opiate which he took for the purpose. As he suffered much pain, and the spasmodic action of the diaphragm intensified this, he tickled his throat, believing that, the stomach being the offending organ, vomiting would relieve him. After getting rid of a good deal of food, the hiccup ceased for a short time. It recurred in the evening, and Dr. Eyselein ordered him morphia and cherry laurel-water, without relief. The moment the patient sought to appease his hunger, the hiccup returned violently, and was only stayed for a short time by fresh vomiting of a little food and slimy mucus. The intervals between the hiccup were from ten minutes to half-an-hour ; and, however little nourishment was taken, or whatever its quality, it regularly made him hiccup. All the drugs tried, chloral, bicarbonate of soda, Ems water, effervescing powders, mustard plasters, tartar-emetic, cannabis Indica, etc., were quite ineffectual. In consultation with a colleague, on the fourth day, he was ordered strychnia, with no better success. Ice swallowed in small pieces, and the application of cold compresses, and the hydropathic 'pack' to the neck and stomach, were equally unsuccessful. Faradisation of the phrenic nerve stopped the hiccup immediately on the first application, but afterwards produced no effect. On the seventh day his 'cramps' were very violent and painful, and he was pronounced to be 'delirious' by the bystanders. He sometimes lay for a long time with open eyes in a dreamy condition. [Delirium of inanition?—*Rep.*] Then he had violent choking fits, with a peculiar whistle, his teeth being firmly clenched. By patting his back and pressing the jaws forcibly together he would recover consciousness for a while and feel better. The hiccup lasted 9½ hours on this day, and only ceased after he was made sick ; every particle of food and drink had to be got rid of before the hiccup would stop. Altogether, in twenty-four hours six only were free from this distressing symptom, for night only brought slight relief. His general health could not fail to be impaired ; he would not stop in bed, and was always

tired and exhausted. All the next week he continued in the same state; the hiccup never ceased spontaneously, nor could he suppress it, and a strong effort to do so brought on a violent shivering. As his finger, which had scratched his fauces till they bled, no longer sufficed to cause vomiting, he seized a stick and pushed it down his throat, thereby causing vomiting and temporary relief. Cold and profuse sweats set in. At the beginning of the third week carbolic acid was ordered, but ineffectually. This week passed like the preceding. As before, he could never take more than the yolk of one egg and a morsel of bread at 5 A.M. Anything else, and even the same food taken at other times, or only a quarter of an hour later, would be rejected. Milk was retained longest—for half an hour. Before the hiccup ceased, a brownish yellow mucous fluid, of somewhat clotted appearance, was vomited. From this time he kept out of doors as much as he could, walking as far as his strength allowed. His sad condition never changed. At the beginning of the fourth week, he seemed to derive much pleasure from a few whiffs of tobacco. In his former illness he could neither taste nor smell, except very putrid paste. Like many other old bookbinders, he said he had lost his sense of smell; partly perhaps from coal-dust and from the use of putrid blood, alum, and the hot iron in their art. At a later period, he again lost his smell. He was now allowed to smoke, but the hiccup recurred, and never ceased till he vomited all the food taken. It always stopped after a very powerful 'heave' of the stomach. Then he smoked only in the free intervals, and slept well for the first time for weeks. In the afternoon the 'strokes' of the hiccup were weaker, and ceased after a dose of nicotin the next morning. To clench success, iodide and bromide of potassium were given in solution, but seemed to aggravate his former symptoms. However, the yolks of two eggs and a double quantity of bread was now retained. Hunger and thirst were now extreme, and he gratified them, notwithstanding pain; taking one and a half litre (over a quart) of iced water at a draught. The bowels were relieved pretty regularly every five or six days, the stools being semi-solid. The next few days the pauses were longer, the hiccup more easily controlled; but even when improving, the least excess in eating or drinking renewed the hiccup, and necessitated emptying of the stomach. During the next four weeks any exposure to cold brought on shiverings, and cramps in his stomach. He was advised change of air, but returned in three weeks little better or even worse. He now looked cachectic, his colour was a pale grey, and his features were sunken. Then, for the first time, inspection of the bare thorax revealed, in the right supraclavicular region, besides increasing emaciation, a swelling towards the right ear, which was certainly not present when Faradisation was tried. This was found to equal the size of a fist, and to consist of a mass of glands, varying in bulk from the size of a pea to that of a canary bird's egg. They were not painful. Deeper glands were also involved. A firm gland about the size of a pigeon's egg in the right axilla was found to have been noticed some three years before, after a violent squeeze under the arms. It now seemed probable that these deep glands, by their progressive growth, had produced irritation of the phrenic nerve. They had probably received some check, and ceased to enlarge, and grew in another direction. In any case it seemed probable that there was carcino-

matous infiltration of the walls of the stomach, and of the brachial and cervical glands.

About August 23 his gastric symptoms were intensified. The epigastric tenderness prevented any accurate physical examination. Local anæsthesia by Richardson's apparatus (chloroform 4 parts, absolute alcohol 1 part), relieved his pains. The urine showed a trace of albumen. From this time he grew weaker and thinner, and more cachectic. For a short time he ate whatever he fancied, apparently with impunity. He died at last, worn out, on January 17 of this year. There was no *post mortem* examination. [The sequel of the case shows that there was serious organic mischief, probably carcinomatous, although the facts do not exclude syphilis. Still the reporter thinks it a pity that, in so severe a case of hiccup, complete rest to the stomach, by means of nutrient enemata, the hypodermic use of morphia and atropin, and the inhalation of nitrite of amyl and chloroform, do not appear to have been tried.—*Rep.*]

W. BATHURST WOODMAN, M.D.

SIMON ON HÆMOPHILIA.—Simon (*Recherches sur l'hémophilie*, Thèse de Paris, reviewed in *Gazette des Hôpitaux*, no. 96.) reporting some cases of hæmophilia, speaks of the pathology of this disorder. He does not allow any material change in the vessels, as this will not explain the temporary disappearance of the hæmorrhagic diathesis nor its permanent disappearance in advanced life. He sustains the hypothesis, first set forth by Cochrane, Otte, and others, of a disturbed innervation, causing a paralytic dilatation of the vessels which favours their rupture. Further, bleeders are very subject to rheumatism [this is by no means the same as acute rheumatism. *Rep.*] and rheumatism is a common complication of chorea, a nervous affection. On these grounds Simon is inclined to believe that hæmophilia is only another expression of a rheumatic diathesis. [There seems to be very little new or important in the thesis.—*Rep.*]

J. WICKHAM LEGG, M.D.

SURGERY.

MARTINEAU ON TUBERCULOUS ULCERATION OF THE ANUS AND OF THE LEFT BUTTOCK IN A PATIENT SUFFERING FROM PULMONARY PHTHISIS AND TUBERCULOUS ULCERATION OF THE FAUCES. M. Martineau exhibited to the Société Médicale des Hôpitaux (*L'Union Médicale*, July, 1874) a model representing a tuberculous ulceration of the left half of the anus and the corresponding buttock.

The patient stated that the ulcer had been preceded early last April by an itching pimple; soon numerous pimples developed, and the itching became very severe; to this itching there followed a sharp persistent pain, increased by the passage of feces—which since the month of March had been liquid. At the beginning of May he was seen by Dr. Martineau, who thus minutely describes the character and condition of the ulceration. On the left buttock was an ulcer irregularly round, having its point of commencement in the rectum on the left side of the intestine, and extending to the upper border of the sphincter. The edges which limited the ulceration on the buttock were slightly projecting, not cleanly cut, and gradually merged themselves in the centre of the ulcer. The margin of the ulceration was slightly bluish in colour, and presented numerous nipple-shaped projections, or multiple yellowish

granulations, about the size of a pin's head. Some of these granulations were in process of destruction; they were replaced by an ulceration which, gradually extending itself superficially and deeply, became mingled with the central portion of the ulcer, which was grey and not bloody; it presented also numerous nipple-shaped projections, yellowish, and separated one from the other by alveoli, giving the ulceration the aspect of areolar tissue, and also by fissures, notably two which, starting from the circumference, were prolonged into the interior of the rectum, extending to the upper part of the sphincter. The antero-posterior diameter of the ulceration measured about $1\frac{1}{2}$ inches, and from without to within it was about $2\frac{3}{4}$ inches. The ulceration appeared to affect only the skin and superficial parts of the dermis. The ulcer itself was soft and pliable, and had no hardened basis. Around the ulceration on the left buttock, in the sulcus, and on the right buttock, there were eight or ten prominent tubercles, which were not painful. (Two of these tubercles had recently commenced to break down.) The external glands in the groin were slightly tumefied, but not painful.

Dr. Martineau considered that the tuberculous nature of the ulceration could not be doubted. It resembled exactly the tuberculous ulceration of the tongue described by Dr. Féréal. There was not the slightest evidence of syphilis in the patient. If any thing were wanted to set the question at rest, it might be found in the fact that the patient had all the physical characteristics of pulmonary phthisis. He had constant cough, great emaciation, diarrhoea, is aphonic, had tubercular ulceration of the fauces, and in all probability of the larynx also. No treatment had availed to arrest the ulcerative process, but the pain was much relieved by the use of a lotion composed of one part chloral hydrate to one hundred of water.

In the discussion which followed, Dr. Féréal agreed with the author in his diagnosis. He had seen several precisely similar cases, and cited two as having occurred last year at the Maison de Santé, and another at the Hôpital St. Antoine.

[The reporter has observed ulceration of the rectum, anus, and adjacent parts, to which the description of Dr. Martineau would most accurately apply; but he has never seen in association 'tubercles' developed in the buttocks or elsewhere in the neighbourhood of the ulcer, nor the question as to the tuberculous origin of the ulceration so decidedly and unmistakably answered.—*Rep.*]

WM. ALLINGHAM.

TILLAUX AND OTHERS ON ACUTE RANULA.—At a meeting of the Société de Chirurgie held on June 3 last, M. Tillaux read a note upon acute ranula (*Le Progrès Médical*). Hitherto he had considered that the obliteration of the ducts of the sublingual glands, and the accumulation of the liquid contained within them, accounted for their formation. But this is not sufficient to explain the origin of ranulae which arise suddenly. M. Tillaux had seen a man who went to bed perfectly well at ten o'clock at night, and at three in the morning he awoke with a large tumour under his tongue. A woman who was going down stairs, and another who was sitting by the fireside, were attacked equally suddenly. These tumours were encysted, and contained a clear, thin fluid, very like saliva. M. Méhu, who analysed it, could not pronounce exactly upon its nature. Some authors consider that these ranulae

are produced by the exaggerated dilatations of Wharton's duct; but this duct is far from being very dilatable, as M. Tillaux has proved by direct experiment. He has injected and inflated it with considerable force, and the utmost size it attained was that of a crow-quill. When the pressure was increased, the duct gave way. But in the neighbourhood of the duct there is a cavity capable of containing a certain quantity of liquid—viz., Fleischmann's bursa, which M. Sappey said he had been unable to detect. M. Tillaux exhibited two specimens in which this synovial sac was very perceptible. It is triangular, situated between the frænum and the genio-glossus muscle, which it penetrates to the depth of about 27 millimètres. Wharton's duct is separated from it only by a very thin membrane. If, then, there was an opening from this duct into the bursa, it would be sufficient to produce a ranula. But Wharton's duct is very tough; it is necessary, therefore, to suppose that, while an obstruction prevents the flow of saliva, there is some degeneration in the walls of the duct which determines a rupture.

M. Dolbeau did not consider that M. Tillaux's theory was sufficient to explain certain forms of sudden ranula. Four years ago M. Dolbeau had seen a lady who was threatened with suffocation in consequence of a sudden tumefaction of the floor of the mouth. Spontaneous resolution took place, but the patient died shortly afterwards from congestion of the lungs. A market porter applied for advice with a retroverted tongue, under which was a large tumour. Wharton's duct was free. The tumour disappeared rapidly, but a small submucous abscess was formed. M. Tillaux's suggestion does not explain the spontaneous dispersion of the swelling.

M. Duplay did not believe that the fluid contained in a ranula was always analogous to saliva. It rather resembled the liquid of mucous oedema. Nor is the tumour always encysted. M. Duplay quoted cases in which Wharton's duct was much dilated, and constituted a true ranula. M. Tillaux ought to have experimented upon a diseased duct if he wished to ascertain its degree of dilatability.

M. Lefort did not believe in the existence of a serous sac beneath the tongue.

M. Tillaux had examined histologically the membrane which lines this cavity. It exhibits all the elements of a serous membrane. The principal object of his communication was to demonstrate the existence of this membrane, and it seemed to him that it explained certain cases of ranula. The examples cited by M. Dolbeau were not of the same kind as his own. His explanations applied only to encysted ranulae arising suddenly, and containing a clear, thin fluid.

W. FAIRLIE CLARKE.

LOBECK ON CONGENITAL UMBILICAL HERNIA.—At a meeting of the Dresden Medical Society, on July 26, 1873, Dr. Lobeck (*Berliner Klinische Wochenschrift*, July 28) showed on the dead body of a child, fourteen years old, a healed congenital umbilical hernia, which was about the size of a small apple, and formerly contained loops of the small intestines protruding through an opening in the abdominal walls of about the dimensions of a crown-piece. This had become closed by exuberant granulations from the peritoneum and from the margins of the sac, which former presented on its surface a stellate

cicatrix. * The enormously enlarged right kidney, three or four times its natural size, was especially considered the cause. W. C. GRIGG, M.D.

OBSTETRICS AND GYNÆCOLOGY.

VERNEUIL ON BLOODLESS EXTIRPATION OF TUMOURS OF THE VULVA.—M. Verneuil (*Gazette Hebdomadaire de Médecine et de Chirurgie*, June 5, 1874) relates the following six cases.

Case 1. An epithelioma of the left labium majus and corresponding vaginal wall was treated by the écraseur, the chain being applied first by aid of a curved trocar and cannula plunged under the growth. The chain had to be applied in four different directions, and the operation, though successful and bloodless, occupied forty-five minutes. Cicatrization was complete in a few weeks. Eighteen months afterwards, there was no sign of return; and an enlarged inguinal gland had disappeared.

Case 2. An epithelioma occupying nearly the whole length of the left labium was removed in a few minutes by a double-chained écraseur, invented by M. Verneuil.

Case 3 was one of very large epithelioma of the superior commissure of the vulva, implicating the mons Veneris, both labia, and the region of the clitoris. A groove was first marked out round the tumour with the galvanic-cautery knife, and then the operation was completed by two écraseurs, worked simultaneously. The operation was successful, but a return of the disease carried off the patient in seven months. So completely was M. Verneuil satisfied with the galvanic knife here, that in the three other cases he employed it alone.

Case 4. was one of epithelioma of the left labium majus. The growth was drawn forward by the left hand, while a groove was traced round it with the galvanic-cautery knife, and then the base was separated. The knife (wire) was kept at a dull red-heat, and the operation only occupied four or five minutes—a period sufficiently long to complete it without loss of blood or use of ligatures. The patient did well at first, but eventually died from extensive gangrenous erysipelas.

Case 5. In this case, one of enormous elephantiasis of the labia and mons Veneris in a girl, aged twenty, a groove was again traced round the growth with the galvano-cautery; but, as it had been used for the previous case, the fluid in the battery became exhausted, and M. Verneuil tried to complete the operation with the écraseur. He found, however, the skin so hard and the progress so slow, that he was afraid of breaking both chain and rack, and had the battery re-filled, and finished with the galvano-cautery. To fix the chain of the écraseur, it was necessary to cut a little with scissors, and the free hæmorrhage showed what might have been expected if the whole had been a cutting operation. The time occupied was forty-five minutes. He makes the following remarks on this case. 1. It is quite possible to follow easily with the eye what the galvano-cautery knife is cutting. Here he was even able to work more slowly when dividing small vessels. He even thinks it easier than when the parts have acquired a general red hue from sponging during a cutting operation. 2. Vessels divided by the cautery can still be ligatured, and if over a certain size require to be. 3. He alludes to the hæmorrhage when the scissors were used a little; also 4. To the hard-

ness of the growth, and the danger of breaking the écraseur. 5. The bath of the battery can be refilled in a few minutes, if the whole be first plunged into a pail of cold water to cool it. The edges of the wound were partly drawn together by silver sutures, and a dressing of wool dipped in alcohol and carbolic acid used. The operation was done on April 1 (the same day as Case 4), and the patient was quite well on May 18, never having had a bad symptom.

Case 6 was one of erectile venous tumour on the labium of a girl aged six. As it was difficult to surround the growth with the cutting loop of the cautery, M. Verneuil used the knife (cautery) and made a regular dissection, the so-called knife being a fine wire of platinum, heated to a dull red. Two or three minutes completed the operation. A simple water-dressing was used, and the patient had a narrow escape from a very severe attack of erysipelas, with abscesses, etc., but ultimately recovered, merely a small linear cicatrix remaining, and the labium being natural in shape.

In some concluding remarks, M. Verneuil points out that there is no greater immunity from erysipelas, pyæmia, and like diseases, after these bloodless operations than when the knife is used. An epidemic of erysipelas was raging at the time when the last three cases were operated on; but he cannot admit contagion in the case of the little girl, who was a private patient, and whose wound he did not touch, the mother dressing it.

[M. Verneuil acknowledges that the discharge in the last case was putrid, and it is to be noted that of the three the one dressed with an antiseptic dressing escaped the disease. With regard to the other cases, they are very interesting and instructive, and amply support M. Verneuil's advocacy of the galvano-cautery. Few will be disposed to differ from him who have tried it in like cases.

In the cases the reporter has seen, however, he cannot say it was quite so easy to follow the wire and see what it was cutting as M. Verneuil has found it.—*Rep.*]

M'RAE ON VESICO-VAGINAL FISTULA, WITH SUBSEQUENT CONCEPTIONS. — Dr. A. E. M'RAE (*Edinburgh Medical Journal*, August 1874) gives a case which illustrates the dangers that beset a pregnant woman, when she has already been the subject of a successful operation for vesico-vaginal fistula.

Mrs. C., aged twenty-one, after a labour lasting forty-eight hours (from impacted head in the brim of the pelvis, and finally a forceps delivery), became the subject of a vesico-vaginal fistula. The labour was in October 1871, and in December the fistula was cured by operation by Dr. Joseph Bell in the Royal Infirmary, Edinburgh. Early in 1872 she again became pregnant, and in September, after being in labour twelve hours, was seen by a medical man, who called in Dr. M'RAE in consultation. Pains were constant and severe. On making a vaginal examination, Dr. M'RAE found a tumour about the size of an orange far up on the anterior wall of the vagina, its lower edge being continuous with the anterior wall of the vagina, and the upper edge attached to the posterior wall and continuous with the body of the uterus; there was extreme tension of all the tissues, but no os could be detected, only a slight depression, with an annulus of dense tissue situated about half an inch from the union of the tumour with the anterior vaginal wall. It was

evident that the cicatrix consequent on the fistula and operation for its cure had contracted so much as to obliterate the anterior *cul-de-sac*, thus seriously diminishing the dilatable tissue. The patient being in a very exhausted state, sedatives were administered, the bowels cleared, and she passed a good night, and no interference was deemed advisable till the following night at 11 P.M., when she was chloroformed, and then something like an os with a tense membrane stretching across it was made out. Attempts to rupture this failed, but eventually a small slit was detected at its upper edge, and Dr. M'Rae introduced the blade of a pair of curved scissors, and divided the cervix in two places, cutting only into healthy tissue and avoiding the old cicatrix. The membranes at once filled the opening, and little or no hæmorrhage occurred. The labour was now urged on by ergot, but the head again became impacted, and the aid of the forceps was required. Hour-glass contraction and retention of the placenta followed, but eventually she made a good recovery. In August 1873 she was again in labour, the os being palpable, but again entirely occluded. After careful watching for forty-eight hours it dilated to the size of a florin, and was fully dilated by manual dilatation. The head again stuck, and forceps had to be used. The child, a full-grown male, died immediately after birth. In March, 1874, the patient being again pregnant, and having pains in abdomen, feared another miscarriage, and sent for Dr. M'Rae. On examining *per vaginam* he found the canal only two and a quarter inches long; there was no depending cervix, and no anterior or lateral *cul-de-sac*. A hard tumour extended from just above the os urethrae to the posterior *cul-de-sac*; a very narrow os, omitting the nail of the index finger, could be felt, and this eventually opened to a size to admit a sixpence, and there was a little hæmorrhage, but with rest, etc., it passed off, and the patient is now going about well.

[This is an interesting case, but rather as a pathological curiosity than as one of much clinical value. Seldom, indeed, would one be likely to meet with such a variety of peculiarities in a single case:—narrow pelvis? (this is implied, but not stated); vesico-vaginal fistula, or rather the results of it; and then the peculiar membrane occluding the os, not merely in the first labour after the cure of the fistula, but recurring again and again. It would be a more complete and therefore more interesting case, if Dr. M'Rae had told us what the extent of the original fistula was, and whether Dr. Bell had to cut into the os or cervix; also whether any menstruation occurred during the operation and the following pregnancy.—*Rep.*] J. KNOWSLEY THORNTON.

KEHRER ON RETRACTED NIPPLE.—Professor F. A. Kehrer, of Giessen (*Archiv für Gynäkologie, and Birmingham Quarterly Medical Review*, July, 1874), states that in some cases, where the nipple is either entirely or nearly under the level of the areola, it can be so brought into prominence by the vigorous action of the child that the latter is able to extract the milk; but there are others in which the retraction is more marked, and which one might aptly term cases of *mammilla circumvallata*, when it is impossible for the child to seize the nipple without surgical interference. In these we have a crater-like cavity surrounded by a wall, in which the short nipple lies concealed at a depth of a centimètre and a half, and from which the strongest efforts of the child are in-

sufficient to draw it. Sometimes the opening into this cavity is so narrow that the nipple could not be drawn out of it even if the child were strong enough, and to this is added the swelling of the parts by the mechanical irritation of the fruitless sucking of the child.

By a simple plastic operation, consisting of the excision of the ring surrounding the nipple, the *mammilla circumvallata* may readily be converted into a *mammilla prominens*, aided by artificial exhaustion of the breast. For this purpose two incisions are made, the upper corresponding to the edge of the cavity and uniting at an acute angle with the lower, at each side at the lateral and median margin of the areola. The skin and subjacent tissue are then raised in a direction towards the nipple, care being taken to avoid the milk-ducts, until the *mammilla* is isolated all round. The edge of the skin-flap thus raised is then to be removed for one or two millimetres in breadth, the hæmorrhage being controlled by cold sponging, and the opposing edges of the wound brought together. In order to avoid tension, it may be advisable to undercut the outer edge of the wound. The wound, when closed, is somewhat oblique, and encloses the nipple, as in a circle. Its after-treatment demands nothing special. After it has healed, the nipple will be found to be on a level with the surrounding skin, or even to be somewhat prominent, and this improvement may be increased by the use of exhausting glasses.

BILLE ON LUXATION OF THE RIGHT SACRO-ILIAC SYNCHONDROSIS.—Dr. Bille exhibited before the Dresden Medical Society on July 5, 1873 (*Berliner Klinische Wochenschrift*, July 13, 1874), the pelvis of a young woman, aged twenty-two, in which this accident had happened. She was stated to have been seventy-nine hours in labour, and as far as could be gathered, she was delivered by the forceps. She had endocolpitis and endometritis during the puerperal stage; but on the tenth day she felt well enough to return to her home. Shortly after her return she began to experience intense pain over the right iliac joint, which compelled her to re-enter the hospital. On admission, all the organs were found healthy with the exception of the uterus, which was subinvolved and very sensitive. Any movement of the right thigh caused crepitation to be heard and felt over the hip-joint. Abscesses formed, opening into the hip-joint and above Poupart's ligament. In the seventh week, she sank from the exhausting drain of pus. The necropsy showed several fistulous tracts leading from Poupart's ligament to the sacro-iliac joint, also infiltration of pus into the sheaths of the deep muscles of the thigh, with separation of the periosteum from the neck of the femur.

The articular surfaces of the right sacro-iliac synchondrosis were roughened and carious, the bones being separated about two lines from each other. The surrounding soft parts were infiltrated and discoloured. The other parts of the pelvis were all healthy. Dr. Bille was induced to believe that the pelvis was quite normal, but the child was disproportionate; but he did not suppose that it (the child) need have separated the joint, and so set up inflammation. It was probably a distinct affection coming on incidentally afterwards. Dr. Krüger combated this view, maintaining that it arose most likely through the foetus being left too long in the second stage, which set up mischief in the joint. This view was not accepted by the Society.

CHELIUS ON AMPUTATION OF THE PORTIO VAGINALIS UTERI.—At the meeting of the Dresden Medical Society on December 4 (*Berliner Klinische Wochenschrift*, August 28), Dr. Chelius described the mode of operation adopted by himself. The patient is placed on her back, and for fixing the uterus he strongly recommends an instrument consisting of four hooks, each two of which are perpendicular to the other two. The *écraseur* is then used, and the neck is divided slowly (four or five hours). By this method the bleeding and pain are very slight. If it be desired to sew the wound together, it should not be attempted until the bleeding has ceased. Five or six days afterwards there is some hæmorrhage, which at times is by no means inconsiderable; it proceeds from within the uterus. Drs. Grenser and Winckel agreed with the speaker that this bleeding came from the internal surface of the uterus, and should not be mistaken for the menstrual flow; for no ovulation took place, as had been previously shown.

OSTERLOH ON TINCTURE OF EUCALYPTUS GLOBULUS IN PUERPERAL AFFECTIONS.—At a meeting of the Dresden Medical Society (*Berliner Klinische Wochenschrift*, July 28) Dr. Osterloh reported that he had given tincture of eucalyptus in thirty-one cases. The preparation was obtained from off a tree in the Botanical Gardens in Dresden. Where there was febrile disturbance without any apparent anatomical cause the drug acted beneficially, but in cases of primary acute inflammatory fever the results were nil. In the course of the debate, it was stated that the preparations sold by the druggists varied considerably in their effects.

W. C. GRIGG, M.D.

OPHTHALMOLOGY AND OTOLOGY.

CARRY ON A REMARKABLE CASE OF HERPES OPHTHALMICUS.—The *Lyon Médical* (no. 14) contains an account by M. A. Carry of a very interesting and remarkable instance of this rare disease; the attack recurred no less than eleven times while the patient was under his observation.

Françoise C., a silk-winder, aged sixteen, was admitted into the hospital November 6, 1873, on account of chronic rheumatism in several of her joints, which was in all probability due to her having been obliged from very early years to assist her mother, who was a laundress. She was anæmic, and had much pain in the joints of her lower limbs, and especially in the left hip-joint. There were some remains of ecthyma upon the lower extremities, but otherwise there were no signs of any eruptions on any part of her body. A week after admission, during the night, she was seized with intense intra-orbital pain on the left side; as morning came the pain subsided, but the eyelids were red and swollen, and were studded with a vesicular eruption which extended to the cheek; here and there the vesicles had coalesced, so as to form bullæ. The eyelids were separated with difficulty, but the conjunctiva had escaped, and there was but slight photophobia. The pain was much increased by pressure upon the supra-orbital and infra-orbital nerves, but there was no fever, and no loss of appetite. In three days, though the pain remained, the eruption had disap-

peared, and in a week from this she had a fresh attack of pain, followed by a similar eruption upon the right side. This was the only occasion on which the right side of the face was affected, but there was a speedy recurrence of the disease on the left side, with pain in the shoulder and axilla, and pain and tenderness along the course of the nerves of the brachial plexus. Each attack was ushered in at night with the same sudden pain, which was followed by the appearance of the eruption. Valerianate of quinine was given internally, and the eruption was dusted with starch-powder. With the third recurrence on the left side, the conjunctiva became implicated, and there was marked photophobia, and the root of the nose at the same time became covered with vesicles. The same treatment was adhered to after each attack, and the girl left the hospital at the end of December quite well apparently, with no marks of any eruption, and without pain, for by this time the pains in her hip-joint and lower limbs had entirely left her.

Three weeks after leaving the hospital, she appeared again after another attack; and on March 14, 1874, she presented herself, the pain and the eruption having recurred no less than six times since leaving the hospital. Her general health was now much impaired, she had a constant cough, and was feeble and out of health; menstruation had not appeared; there was some failure of memory, but no evidence of any lesion of any of the nervous centres. Up to this date the attack had recurred ten times, once on the right side and nine times on the left, the side originally affected.

There can be no doubt of the nature of the case above related, or that it could be other than a case of true herpes ophthalmicus. According to common experience such cases are rare; thus amongst 5,000 patients, Dr. Cohn could record but a single instance, and of 2,854 patients seen by Steffan, one only was the subject of this form of shingles. Dr. A. Hybord has collected ninety-nine cases on record; and if any further proof be wanted, it is supplied by the experience of Hebra, who observed but a single case amongst 102 cases of herpes spread over a period of nine years.

The case here recorded by M. Carry is remarkable in two ways, both as to the seat of the eruption, and the periodicity of its appearance. There is but one other case on record, mentioned by Mr. Jonathan Hutchinson, in which the eruption was limited to the eyelids, without invading the frontal region, and in this instance it is evident that a distinct region supplied by each of the two upper divisions of the fifth pair was attacked. The case also bears out an observation by Mr. Hutchinson, to the effect that the coats of the eyeball are only affected when the nasal branches of the nerve are implicated.

With regard to the recurrence of the attack, the case is unique, inasmuch as instances of periodical recurrences of shingles are till now unknown. It is a curious point in the case that the vesicles did not leave the scars in the integument, which are so characteristic of eruptions of this description. It is so rarely that one meets with bilateral shingles, that the symmetrical occurrence of the eruption on each side of the face is worthy of note. There is but one other case of this occurrence on record, also published by M. Hybord. If the researches of Charcot, of Cotard, of Weidner, and of Wagner, be well grounded, and the eruption in cases such as this be the cutaneous expression of a neuritis due to hyperæmia of the

spinal cord or to some ganglion analogous to it, such as the Gasserian ganglion, then M. Carry thinks we may assume that his patient was the subject of a hyperæmic condition of both ganglia, which was permanent in the left but only temporary on the right side, and he suggests that the cause in this instance was of a rheumatic character.

In support of his view that there probably was some affection of the ganglia, M. Carry quotes the report of the *post mortem* appearances which have been met with in two instances in patients who have died during an attack of shingles. One of these cases has been minutely reported and at length, by Oskar Wyss (*Archiv der Heilkunde*, 1871), and a third case is mentioned in which M. Carry was able to verify the conditions observed and described in the necropsy of the other cases. In M. Carry's case, the morbid appearances were a softening of the left half of the pons Varolii and of the fifth nerve on this side, congestion of the pia mater, which surrounded the three divisions of the nerve on this side, and a softening of the ganglion itself. It is unfortunate, however, that no more minute or microscopical examination was made. After the publication of this paper, M. Carry's patient was readmitted into the hospital on account of aggravated attacks of a hysterical nature, and of further returns of the herpes, so that the girl had suffered in all from thirteen attacks affecting the left side of the face, and of two only affecting the right side.

BOWATER J. VERNON.

COHN ON HEMIOPIA.—Dr. Hermann Cohn, of Breslau, relates five cases of hemiopia in Zehender's *Klinische Monatsblätter für Augenheilkunde* for June and July. From his perimetric observations of hemiops he shows—(1) that the dividing line between the percipient and non-percipient portions of the retina never passes through the blind spot; (2) that the dividing line is never a truly perpendicular line, but forms an indented line, which passes beyond a perpendicular drawn through the fixation point; and (3) that in all cases more or less peripheral defects exist in the percipient half. He relates a case of right-sided hemiopia after a wound which completely recovered, being the second case of recovery from hemiopia on record, the other being a case of Von Graefe's, recorded in Zehender's *Monatsblätter* for 1865. He tries to reconcile the perimetric observations with the descriptions of the decussation of the fibres at the optic commissure by Müller, Mandelstamm, Biesiadecki, and Michel, but finds he cannot explain all the varied defects by any of them.

W. LAIDLAW PURVES.

CORRESPONDENCE.

SODA-WATER.

(To the Editor of the LONDON MEDICAL RECORD.)

SIR,—Our attention has been drawn to an editorial note which appeared in your journal a short time since, embodying and remarking on Dr. Lankester's report on soda-water sold in his district. As Dr. Lankester's district is our district also, we feel that our reputation is by reference jeopardised when he says:

'From an examination of six specimens of this water, bought of chemists and druggists and publicans, none of them contained in a bottle a residue of 10 grains.'

As we guarantee to the profession continually that our alkaline waters are of the definite strength ordered by the Pharmacopœia, we must ask you, in fairness, to insert this

letter in the MEDICAL RECORD, to assure your readers that each bottle of our soda-water does contain, and always has contained, 15 grains of bicarbonate of soda. Our solution is always made of the strength of 30 grains in a pint; and, to be perfectly certain on the point, we have submitted a bottle of the water to volumetric analysis, and the result is evidence of 15.250 grains. We may add that each bottle is supposed to contain half-a-pint; but it may be 4 to 8 drachms more or less.

We are, etc.,

BLAKE, SANDFORD & BLAKE.

47 Piccadilly, Sep. 16, 1874.

MISCELLANY.

THE Berlin African Exploration Society is fitting out a second expedition to the interior of Africa. Herr Alexander von Hormayer, the well-known ornithologist, will be the leader of the expedition, and will go from St. Paul de Loanda by way of Kassimbe to Moatta Jambe.

THE Government of India, says the *Bombay Gazette*, has determined to perpetuate the memory of Dr. Stoliczka, the distinguished naturalist, who met his death on the return journey from Yarkand, by erecting, at the public expense, a tomb over his remains at Leh, and a tablet in the new Indian Museum at Calcutta.

A LARGE APPETITE.—A woman suffering from bulimia has lately died in Paris at the age of forty-three. She ate every day on an average about six pounds and a half of bread, and half a pound of meat. Bread formed her principal sustenance, of which she required about nine pounds to completely satisfy her appetite. The unfortunate creature earned about two shillings a day as a needle-woman, which, with a little income she possessed, was nearly all absorbed in providing food for her insatiable appetite.

CANNIBALS' TASTES.—In the anthropological section of the recent congress at Lille, reported in the *Revue Scientifique* of Sep. 12, one of the subjects discussed at some length was the practice of anthropophagy. M. Broca thereupon made some remarks on the different nature of the flesh of different races. He said that the cannibals, perhaps fortunately for us, do not like the flesh of whites; they find it bitter and salt, whilst, notwithstanding the latter quality, it does not keep well. Their special dainty is the flesh of the negro, of which they like the flavour, and which becomes dry by keeping rather than decomposes by the natural process.

WHERE WILL IT END?—The *République du Midi* asserts that there is at the present time in the Hôtel Dieu, at Montpellier, a rival patient to the fork swallower, who has so long occupied the attention of the French paragraph writers. The fresh object of interest has distinguished himself, in a moment of delirium, by swallowing a thermometer. It is by no means unusual for the students in French hospitals to lay down the thermometers which they have been using to obtain the temperatures of their patients on their beds, and it appears that a man, whilst in a state of high fever, managed to swallow an instrument which had been placed on his bed and forgotten.

MEDICINE AS A PROFESSION FOR WOMEN.—During the last week in August a congress of Danish physicians, more than 200 in number, met at Aarhus, when among other points under discussion, the claims of women to enter the profession were brought forward. The Congress came to no definite determination on the subject, but it listened with patience to the members who pleaded the cause of female students, and the general feeling at the meeting seemed to be that there was nothing to prevent women from treating the diseases of their sex with ability and success, while in the matter of obstetric practice it was in the highest degree desirable to transfer it completely from the hands of common midwives to those of women duly certificated by the University.

THE publishing house of Leuckart, in Breslau, has prepared for gratuitous distribution at the forty-seventh meeting of the Association of German Naturalists and Physicians, a catalogue of the principal works in medicine, pharmacy, and natural science which have appeared in Germany, with two illustrated appendices: viz., 1. The baths, mineral waters, and health resorts of Germany, Austria, and Switzerland; their temperature, analysis, etc. 2. A catalogue of surgical, orthopedic, and gynaecological instruments. The book contains 800 pages, and is dedicated by permission to the Managing Council of the Association.

DR. J. M. LEUPOLDT, ordinary Professor of Pathology, General Therapeutics, Psychology, and History of Medicine, in the University of Erlangen, died on August 21, at the age of eighty. Dr. Leupoldt had been actively engaged in lecturing since his appointment, nearly fifty years ago, to the chair of Medicine, the duties of which he continued to fulfil to within a short period of his death. Beyond the sphere of his own academical activity, he was best known by his comprehensive work on the *History of Medicine*, published in 1863. Among his fellow-townsmen Dr. Leupoldt was respected for the indefatigable energy with which he continued to the last to employ his talents and exert his influence to ameliorate the condition of the poor, and to promote objects of philanthropy.

BRAIN OF THE TERTIARY MAMMALS.—Professor Marsh has communicated to the Connecticut Academy of Arts and Sciences the result of his researches on the size of the brain of the tertiary mammals. He finds that the Eocene mammals had small brains, in some cases scarcely larger than those of the higher reptiles. In Dinoceras, little less than the elephant in bulk, the brain cavity is not more than one-eighth of the average size of existing rhinoceroses. In Tinoceras the smallness is quite as remarkable. In the gigantic Brontothoridæ of the American Miocene, the brain-cavity is very much larger than in the Eocene Dinoceras, being about the size of that of the Indian rhinoceros. In the Pliocene strata of the West a species of mastodon is the largest mammal, and although but little larger than Brontothorium it had a much bigger brain, though not equal to that of existing Proboscidiæ. He found a similar progressive development in the equine mammals from the Eocene to the Pliocene periods.

EFFECTS OF IMAGINATION.—At a late meeting of the Paris Académie des Sciences a letter was read from M. Volpicelli, of Rome, to M. Chevreul, in which the writer related that a Roman physician had asserted to him that, if a magnet were brought near to a nervous patient, magnetism had the effect of disturbing him in various ways, and notably in his condition of health. M. Volpicelli goes on to state that, being invited to experiment on a nervous subject at the San Spirito hospital, he practised a little ruse, and instead of taking with him a magnet, provided himself with a piece of unmagnetised iron. The patient scarcely saw the piece of iron before he fell into convulsions; his imagination became so highly excited that nervous disturbances of the most extreme character supervened. M. Volpicelli then made a second experiment. A magnet was placed in the hands of another person suffering from nervous disorder, who, when a few minutes had elapsed, was so extremely excited that it was necessary to take the magnet from him. M. Volpicelli, however, was convinced that the nervous disturbance was brought on by the sight of the magnet and not by magnetic action, and he was subsequently able to assure himself of the fact. The same person had to preside over a scientific meeting, and M. Volpicelli contrived to surround him with very powerful magnets, which were introduced into his chair, into the drawer of the table before him, and even under his feet, without his having the slightest suspicion of the trap laid for him. During the meeting, which lasted more than two hours, his nerves were not in the least affected; and when the meeting was over he declared, in answer to a question

put to him by M. Volpicelli, that he was perfectly well; but when it came to his knowledge that he had been surrounded by powerful magnets he was extremely surprised and alarmed, and began to have an idea that he could not have been so well as he thought.

THE PHYLLOXERA.—The subject which seems to cause the most interest in France at the present moment, and very naturally so, when the damage it inflicts upon the vines is considered, is that devastating little insect, the phylloxera. M. Lichtenstein, a well-known member of the Entomological Society of France, has just published some interesting details on this mysterious pest. He informs us that six years of arduous labour are finally crowned with success, and that he now thoroughly knows the habits of the phylloxera. He asserts that he has discovered its origin, and likewise a means of destroying it at small expense. At the present time, he tells us that it swarms on everything, like bees or ants. Winged insects come out of the earth in unheard of quantities; at a rough calculation about 500,000 from every two acres daily, and make their way towards the woods. There they lay their eggs on the cochineal oak (*Quercus coccifera*), the eggs being of two sizes, large and small. From these eggs issue small apterous insects, male and female, which couple immediately. M. Lichtenstein has not yet discovered how the product of this union, which is beyond any doubt the source of the next year's colonies, returns to the vineyard; but he is continuing his endeavours to ascertain this point. It is, however, he asserts, easy to burn and destroy millions of these insects by setting fire to the clumps of the oaks mentioned, which surround the vineyards. This heroic remedy should, he says, be applied at once, since the insect is only thus within reach once a year. The epochs when this occurs vary according to the weather and other circumstances; thus, whilst in one locality the eggs are already opening, in another they are scarcely laid, and in yet another the laying is going on as fast as possible. M. Lichtenstein here notes that though he terms the substance deposited by the insects on the oak an 'egg,' it would be more accurate to term it 'chrysalis,' since it gives origin to a perfect insect, and not to a larva. Truly Protean in its nature, the Phylloxera vastatrix presents such extraordinary metamorphoses that it upsets all the received data of entomological science. It begins as an egg, finishes by another egg, and altogether passes through a too complicated kind and number of changes to be described without considerable space and detail.

NOTICE.

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The First Volume, containing upwards of Two Thousand Articles abstracted and compiled by a staff of Fifty Hospital Surgeons and Physicians, is now ready, price 19s. 6d. Cloth Cases for binding the Numbers for the year 1873 are also ready, price 1s. 6d. each.

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Advertisements should be sent to the Office, 15 Waterloo Place, S. W., before Twelve o'clock on Tuesday morning.

The London Medical Record.

WEDNESDAY, SEPTEMBER 30, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ADVICE TO ENGLISH MEDICAL STUDENTS VISITING PARIS.

Many English students, after they have passed their examinations, visit Paris during the winter session, but do not exactly know, at first, how best to employ their time. The following synopsis of medical studies in Paris will, we hope, help them in some degree.

To attend the hospitals in Paris, permission must be got from the Assistance Publique, No. 3, Avenue Victoria, where, on asking for 'une carte pour visiter les hôpitaux de Paris,' and at the same time showing one's diploma or other evidence of being in the medical profession, a ticket will at once be given without any payment. This ticket has to be shown to the porter of the hospital, if asked for. Students without one are sometimes refused admission. The hospital visit is always early in the morning, from 8.30 to 11 A.M.

It will generally be found that the hospitals in the *Quartier Latin*—the students' quarter, viz., the Hôtel Dieu, La Charité, L'Hôpital des Cliniques, La Pitié, are so crowded that there is no getting near the patients; but on the other hand, these hospitals have the advantage of a clinical lecture after the visit, which the more distant hospitals, as Beaujon, Saint-Antoine, Necker, Lariboisière, have not. All the hospitals above named are general hospitals, and take in surgical and medical cases, and some of them midwifery. In the St. Louis, there is a special department for diseases of the skin; and, during the summer, Dr. Hardy gives a weekly clinical lecture on these diseases. There is a very good but small museum, containing specimens of skin-diseases, attached to this department. Dr. Péan, who is the most successful operator in Paris for ovariectomy cases, has surgical wards in the same hospital, and is one of the best men for a student to attend, as he thoroughly explains how and why he does every operation. The Hôpital des Enfants, in the Rue de Sèvres, next door to the Hôpital Necker, receives only children under fifteen years of age. Dr. Roger, one of the most eminent authorities on children's diseases, gives a clinical medical lecture every Monday at 9 A.M.

The hospitals specially appropriated to syphilitic patients are—L'Hôpital du Midi for men, and Lourcine for women. A special permission to visit these two hospitals must be got from the Assistance Publique. The visit is at the same hour as at the other hospitals, viz., about 9 A.M. Students specially interested in the treatment of the insane will visit Ste. Anne and La Salpêtrière.

The Lectures of the Faculty take place in the Rue

de l'École de Médecine, and nearly all in the afternoon. They are all public. The most worth attending during the winter session are those given by Dr. Dolbeau, on 'Surgical Diseases of particular Regions of the Body' (maladies chirurgicales des régions). As a rule, the lecturers of the Faculty treat of limited subjects, and it would require seven or eight years' attendance to get through a complete course of (for instance) anatomy. It is not so with the lectures at Clamart (17 Rue du Fer à Moulin, Avenue des Gobelins). Here the lectures are concise and practical, and are as follows:—Surgical Anatomy, by Dr. Tillaux, at 4 P.M., Tuesdays and Fridays; Physiology, by Dr. Terrillon, at 4 P.M., Wednesdays and Saturdays; Histology, by Dr. Grancher, at 2 P.M., Tuesdays and Fridays. All these lectures are public. The student who wishes to take up Histology can do so by entering his name as 'un étudiant des hautes études,' at the Collège de France, in the Rue des Écoles. The instruction here is also gratis. M. Ranvier, one of the most eminent histologists in the world, has the superintendence of the laboratory.

Dr. Galezowski gives every day at 12 A.M., at 26 Rue Dauphine, a free clinical lecture on Diseases of the Eye. Students here can practise with the ophthalmoscope, and learn much in a short time.

Students who wish to dissect will either have to go to the École Pratique, in the Rue de l'École de Médecine, or to Clamart. Operations, as a rule, are not allowed during the winter session; but may be done during the summer, when dissecting is impossible. At the École Pratique, foreign doctors can dissect through the entire winter session for sixty francs; but they will get, at most, two parts during the session. Clamart has much better dissecting rooms as regards hygienic arrangements, etc. Here foreigners can dissect by becoming pupils of the prosectors. Very good demonstrations are also given by senior students, internes des hôpitaux, at charges varying from 30 to 50 francs the course. The dissecting rooms at Clamart are open from 12 to 4 P.M.

It will thus be seen from the above that the hospital work must be done in the morning, leaving the afternoon free for lectures or dissecting.

The following courses of lectures will be delivered in the Paris Faculty of Medicine during the winter session, commencing Monday, November 3.

Medical Physics.—Professor Gavarret: General Physics—Heat, Electricity, Light, Wed. and Fri., 12. Biological Physics: Physiological Phenomena of Voice and Hearing, Mon., 5.

Medical Pathology.—M. Fernet, agrégé, for Professor Axenfeld, Mon., Wed., Fri., 3.

Anatomy.—Professor Sappey: the Respiratory, Urinary, and Generative Apparatus, Mon., Wed., Fri., 4.

General Pathology and Therapeutics.—Professor Chauffard: Disease in General, Pathological Classifications, General Etiological and Microscopic Characters of the Different Classes of Diseases, Mon., Wed., and Fri., 5.

Medical Chemistry.—Professor Wurtz: General Chemistry, Thurs. and Sat., 12; Biological Chemistry (Chemical Study of Digestion), Tues., 4.

Surgical Pathology.—Professor Dolbeau: Surgical Diseases of Regions, Tues., Thurs., and Sat., 3.

Surgical Operations and Apparatus.—Professor Léon le Fort: Treatment of Diseases of the Bones, Joints, and Vessels, Tues., Thurs., and Sat., 4.

Histology.—Professor Robin : Generation and Development of the Anatomical Elements, and of the Humours, Tues., Thurs., and Sat., 5.

History of Medicine and Surgery.—Professor Lorain : The Pulse, Historical Studies, Some Epidemic and Contagious Diseases, History, Tues., Thurs., and Sat., 5.

Clinical Medicine.—M. Hayem for Professor Bouillaud, and Professor G. Sée, at La Charité. Professor Béhier, at the Hôtel-Dieu. Professor Lasègue, at La Pitié. All from 8 to 10 A.M. daily.

Clinical Surgery.—Professor Richet, at the Hôtel-Dieu. Professor Gosselin, at La Charité. Professor Verneuil, at La Pitié. Professor Broca, at the Clinical Hospital. All from 8 to 10 A.M. daily.

Clinical Midwifery.—Professor Depaul, at the Clinical Hospital of the Faculty, 8 to 10 A.M. daily.

Diseases of Children.—Professor H. Roger, at the Children's Hospital, Mon., Thurs., and Sat., 8.30 A.M.

THE GERMAN MEDICAL SCHOOLS.

We give this week, for the information of students who may be intending to pass the winter at one of the German medical schools—including that of Vienna—statements of the subjects taught and of the teachers in some of the principal universities. Among these, the first rank has for some time been held by Berlin and Vienna ; but other of the universities, notably Würzburg and Leipzig, have in recent years grown considerably in favour. A few notes on the principal attractions presented by the several institutions may be acceptable.

In Berlin, the great inducement to students to visit the university is the teaching of pathology. The Pathological Institute, which owes its existence in its present form to Professor Virchow, and has been under his direction for eighteen years, has served as the prototype of other institutions of the kind in Germany and elsewhere. It has sent out a host of disciples, who have carried far and wide the influence of its celebrated teacher ; and among those who have been his assistants in teaching are to be found the names of many who have made for themselves reputations in science—such as Hoppe-Seyler, Von Recklinghausen, Hüter, Cohnheim, Liebreich, Ponfick, etc.

The institute, situated within the grounds of the Charité, contains a lecture-theatre, a room for demonstrations, a museum, a chemical laboratory, a histological laboratory, a suite of rooms for the *post mortem* examinations, private rooms for the professor and his assistants ; while in the basement floor there are kept the collection of guinea-pigs, rabbits, white rats, etc., the usual signs of experimental activity. The chemical laboratory has recently had an additional wing built to it, to furnish accommodation for physiological and other apparatus.

Three times in the week Professor Virchow gives demonstrations of pathological anatomy, nominally at eight o'clock, but actually from half an hour to an hour and a half later. These last from two to three hours, and the demonstration has sometimes been known to terminate nearer one o'clock than ten. One out of three days in the week—Monday—is devoted to demonstration over the *post mortem* table, and this is an occasion that the student should endeavour not to miss. One or two students are asked to volunteer to do the work, under Virchow's direction ; and although this system is more to the advan-

tage of the few than of the many, and often proves rather tedious to the spectators, students may be counselled to be none the less assiduous in their attendance. When the session is considerably advanced, Virchow relegates this work to his senior assistant, who carries it out with the same care and elaborateness. The ordinary *post mortem* examinations are made throughout the forenoon, and are chiefly attended by those who have followed the clinical history of the cases. The material from them is reserved for demonstration by the professor on the mornings of Wednesday and Saturday. The demonstrations take place in a large room with tables specially arranged for the purpose, the specimens being placed on wooden trays and circulated among the students. The professor usually commences with an important specimen or group of organs from one case, on which he expatiates for a considerable time, the remaining specimens being despatched in quick succession. It is much to be regretted that many of the students are unable to see the specimens until after the demonstration is over. Plans have been tried to put all the students on an equal footing in this respect, but the chief grievance, viz. the congregating of a number of heads over a tray, and the *têtes-à-tête*, and consequent delays that result, have perhaps no other remedy than in the disinterestedness of the students themselves.

On the three remaining days of the week not devoted to demonstration, a course of pathological histology is given by one of the assistants, under Virchow's direction. It has been found that many students come to the Pathological Institute imperfectly grounded in normal histology, and on this account, courses of instruction in the microscope are given.

In addition to his demonstrations, Professor Virchow lectures on four days of the week at 1 P.M. on general pathology.

Every encouragement is given to students who are desirous of working out, in the laboratory of the institute, any special point in pathology. A library of books of reference is available, and a place in the laboratory will, if possible, be assigned to the student, free of charge. It will be found more convenient for the student to have his own microscope. The chemical laboratory is also open to students for researches or for exercises in physiological and pathological chemistry, under the direction of Professor Salkowski ; a fixed charge per session (3*l.* or 4*l.*) being made, to cover the cost of material.

Of clinical teachers, Berlin possesses some of the most eminent—men whose names are too well known to require more than mention. In Medicine, there are Frerichs and Traube ; in Surgery, Langenbeck and Bardeleben ; in Aural Surgery, Lucae ; in Psychology, Westphal, etc. We must refer to the reader to page 612 for the names of the professors and teachers of the various branches of medical science in the university.

Like Berlin, Vienna has a school of pathology, under the guidance of an eminent teacher—the veteran Rokitsansky ; who still retains his professorship, though a few months ago negotiations were carried on with von Recklinghausen, Cohnheim, and other eminent pathologists of the modern school, in the anticipation of his retirement. Celebrated, however, as the pathological school of Vienna has been, and instructive as its teaching still is, the material is

not utilised with the same elaborate care as at Berlin under the management of Virchow. Still there are great opportunities for the study of pathological anatomy; and the course of Experimental Pathology, under Professor Stricker, is highly instructive.

It is the number and variety of special courses that form perhaps the great attraction of the Vienna school; and in these it has the pre-eminence over Berlin. These special courses are tutorial, of limited duration (four to eight weeks), and are attended by numbers varying from half-a-dozen to forty or more. The courses for Diseases of the Throat and Ear are much attended; and the clinical teaching of Professor Hebra on Diseases of the Skin is greatly frequented by foreign students. Among other teachers in this department whose lectures should be attended, are to be mentioned Drs. Neumann and Kaposi.

We give also the prospectuses of the winter courses at the Universities of Breslau, Göttingen, Leipzig, Munich, and Würzburg. Breslau, which has lately been the place of meeting of the Congress of German Naturalists and Physicians, possesses among its university staff several eminent contributors to medical science. Among them may be specially mentioned Heidenhain in Physiology, Cohnheim in Pathology, Voltolini in the Surgery of the Throat and Ear, and Spiegelberg in Midwifery. In Leipzig there are the well known names of His (in Anatomy), Reclam (in Hygiene), Thiersch (in Surgery), Coccius (in Ophthalmology), Wunderlich (in Medicine), Credé (in Midwifery), Leuckart and Carus (in Comparative Anatomy). Munich reckons among its teachers Voit (in Physiology), Buhl (in Pathology), Nussbaum (in Surgery), Pettenkofer (in Hygiene), Ziemssen (in Medicine), etc. The University of Würzburg has already been spoken of in the LONDON MEDICAL RECORD (December 24, 1873) as growing in favour with English students; its chief attractions are the teachings of Kölliker (in Anatomy), Gerhardt (in Medicine), and Scanzoni (in Midwifery).

THE MEDICAL SCHOOL IN VIENNA.

The Vienna Medical School is noted for its large hospital (the Allgemeine Krankenhaus) and for the extent to which the teaching of special departments is carried on, as well as for the eminence of the teachers.

The General Hospital, in the Alsergrund, founded by the Emperor Joseph II., in 1784, is capable of accommodating about 3,000 patients. There are 99 wards, 55 for males, 44 for females; there are also some small wards capable of containing six or eight patients. The hospital is divided into seven medical, four surgical, and six special departments, the latter being for diseases of the skin, eye, chest, and nervous system, diseases of women, and syphilis. There are two medical clinics, under Professors Duchek and Von Bamberger, two surgical clinics under Professors Von Dumreicher and Billroth, clinics for Diseases of the Eye under Professors Von Arlt and Stellwag von Carion, and clinics for Obstetrics and Diseases of Women under the charge of Professors Carl Braun-Fernwald, Späth, and Gustav Braun, one being for midwives. Clinical instruction is given in Diseases of the Skin by Professor Hebra; in Syphilis, by Professor Sigmund (Von Ilanor); in Laryngoscopy, by Dr. Schrötter; in Diseases of

Children, by Professor Widerhofer; in Psychology, by Professor Meynert; and in Otology, by Professor Gruber. A considerable portion of the school is also situated within the hospital; thus there are the Pathological Museum and *post-mortem* room, under the direction of Professor Baron Rokitsansky; the room for medico-legal necropsies, under Professor Dlauhy; the Institute for Experimental Pathology, under the direction of Professor Stricker; and the Institute of Chemical Pathology, under Professor Ludwig. The Anatomical Museum and Dissecting Room, the Anatomical Institute and Dissecting Room, under the direction of Professor Langer; the Physiological Institute, where Practical Physiology is carried on under Professor Brücke; the *Materia Medica* Museum, and the Medical Library, are outside the hospital, in the Alsergrund.

The courses of lectures and practical instruction in the medical faculty of the University are numerous, and are divided among the professors, their assistants, and the private teachers (*privat-docenten*). The special courses of instruction are those which are especially attractive to the foreign student. Their duration is usually from four to eight weeks, a new course generally commencing a few days after the former one is finished. The fees are greater than for the ordinary classes, usually varying from fifteen to twenty florins. The instruction given in them is demonstrative and practical.

In the department of *Anatomy*, the teachers are Professors Voigt and Langer (Human Anatomy); Professor Wedl (Normal and Pathological Histology); Professor Meynert (Nervous System); Professor Baron Rokitsansky and Professor Klob (Pathological Anatomy); Dr. Toldt (Use of the Microscope and Practical Histology); Dr. von Patruban (Surgical Anatomy); Dr. Friedlowsky; and Dr. Kundrat, assistant to Professor Rokitsansky.

The professor of *General Physiology* is Dr. Brücke; and the other teachers in the department are Professor Schwanda (Medical Physics); Dr. Schenk (Embryology); Dr. Exner (Microscopic Exercises and Physiological Optics).

In the department of *Materia Medica and Therapeutics*, the teachers are Professor Schroff (Pharmacology and Toxicology); Professors Benedikt and Schwanda and Dr. Schultz (Electrotherapeutics); Chronic Nervous Diseases and Electrotherapeutics (Dr. F. Fieber); Dr. Winternich (Hydrotherapeutics); Professor Seegen (Balneology).

In the department of *Medicine*, Special Medical Pathology, Therapeutics, and Clinical Medicine, are taught by Professors Duchek, Von Bamberger, and Löbel. General Pathology is taught by Professor Stricker; and the Experimental Physiology and Pathology of the Central Nervous System by Dr. Obersteiner. Instruction in Percussion and Auscultation is given by Professors Duchek and Bamberger and their assistants, and by Drs. Kolisko and Schrötter; and the students are trained in the Examination of Patients and the Diagnosis and Treatment of Disease, by Professors Seligmann, Stern, and Schwanda, and Drs. Rollet and Schnitzler. Laryngoscopy and Rhinoscopy are taught by Dr. Schrötter, Dr. Störk, and Dr. Schnitzler. Instruction regarding Diseases of the Abdomen is given by Dr. von Györy; and regarding Diseases of the Nervous System by Professor Benedikt, Dr. Rosenthal, and Dr. Oser. Dr. Winternitz gives instruction in the Application of Hydrotherapeutics to the Treatment of Internal

Diseases. Professor Drasche lectures on Epidemiology.

In the department of *Surgery*, instruction in Clinical Surgery, with Lectures on Surgical Pathology and Therapeutics, are given by Professors Baron von Dumreicher, Billroth, and Dittel. Practical Surgery is taught by Professors Dumreicher and Billroth and their assistants, and by Professors Cessner, Weinlechner, and Böhn, and Drs. Salzer, Von Mosetig, Neudörfer, Hofmök, Albert, and C. Fieber. Dr. Neudörfer gives instruction in Resection of the Large Joints. Dr. Englisch and Dr. Ultzmann lecture on Diseases of the Urinary and Generative Organs. Fractures, Dislocations, and Orthopædic Surgery, with Instruction in the Application of Bandages, etc., are under the charge of Drs. Englisch and Hofmök; Aural Surgery is taught by Professors Gruber and Politzer, and Dr. Urbantschitsch; and Dental Surgery by Drs. Zsigmondy, Steinberger, and Scheff.

Ophthalmology and the Use of the Ophthalmoscope are taught by Professors von Arltz, Stellwag von Carion, and by Drs. von Reuss, Kämpf, Schnäbel, Hock, and Bergmeister.

Midwifery, theoretical and practical, is taught by Professors Braun von Fernwald, Späth, and Gustav Braun, and their assistants, and by Dr. Mayrhofer and Dr. Carl Rokitsansky. Dr. Gustav Braun and Dr. Habit deliver lectures on Obstetrics to Midwives. Instruction regarding Diseases of Women and Operations is given by Drs. Böhm, Salzer, Funk, Chrobak, C. Rokitsansky, and Lott. Diseases of Children are taught by Professors Widerhofer and Weinlechner, and by Drs. M. Pollitzer, Schuller, Fridinger, Fürth, Monte, and Fleischmann.

Clinical Instruction, and Lectures on *Diseases of the Skin* are given by Professor Hebra, and by Drs. Reder, Wertheim, Neumann, Auspitz and Kaposi; and in *Syphilis* by Professors Sigmund, Zeissl, Auspitz, Kohn, and Kaposi.

Psychological Medicine is taught by Professors Meynert, Schlager, and Leidesdorf; and *Forensic Medicine* by Professor J. Dlauhy. Instruction in Hygiene is given by Professor Seegen; and in Military Hygiene by Professor Baron von Mundy.

UNIVERSITY OF BERLIN.

The following courses of tuition will be given during the winter session, commencing October 16, and ending March 9, 1875.

History of Medicine.—Professor Hirsch, General History of Medicine, Mon., Tues., Thurs. 4. Dr. Falk, History of Medicine to the beginning of the nineteenth century, three times weekly. Dr. Hirschberg, the Mathematical Foundations of Medical Statistics, once weekly.

Anatomy.—Professor Reichert, Theoretical Histology, Mon. 10; Anatomy of the Brain and Spinal Cord, Sat. 12; Anatomy of the Human Body; Texture and Microscopic Structure of the Human Body; Anatomical Demonstrations, daily, 9 to 12 and 2 to 4. Professor Hartmann, Anatomy of the Organs of Sense, Fri. 3; Bones and Ligaments, Fri. and Sat. 9.

Physiology.—Professor Du Bois-Reymond, on certain Recent Discoveries in Natural Science, Mon. 6; Experimental Physiology, daily, except Mon. 10; Physiological Exercises in the Laboratory. Professor Munk: Generation in Man and Animals,

Tues. 5; General and Special Physiology of Nerves and Muscles, with experiments, four times weekly.

General Pathology and Therapeutics.—Professor Virchow, General Pathology and Therapeutics, with Pathological Anatomy, daily, except Sat. 1; Course of Demonstrations of Pathological Anatomy and Histology, with Instructions in making *post mortem* Examinations, Mon., Wed., Sat., 8 to 10; Practical Course of Pathological Histology, Tues., Thurs., Fri., 8 to 10. Professor Salkowski: Animal Ferments, once weekly; Physiological and Pathological Chemistry, three times weekly; Demonstrations in the Laboratory of the Pathological Institute, daily. Dr. von Lauer: General Medico-Chirurgical Semiotics, Mon. and Thurs., 3; Medico-Chirurgical Therapeutics, Tues. and Fri., 3.

Special Pathology and Treatment of Disease.—Professor Frerichs, three times weekly, 12. Professor Hirsch, daily except Sat., 5. Dr. Bergson, daily, 6. Dr. Riess, Miasmatic and Contagious Diseases, once a week. Professor Meyer: the Examination of Patients, with Conversations on special subjects in Pathology and Therapeutics, Sat., 1. Dr. Schiffer: on Fever and Inflammation, with Experimental Demonstrations, twice weekly; on the Physiology and Pathology of the Urine, once weekly. Professor Jacobson: Medical Physics, Wed. and Sat., 5; Diseases of the Lungs, with Demonstrations, twice weekly. Dr. Fränzel: Auscultation and Percussion, with practical Instruction, Mon., Wed., and Fri., 12; Course of Laryngoscopy. Professor Waldenburg: Practical Course of Percussion, Auscultation, etc., Tues., Fri., and Sat., 6; Practical Laryngoscopy, Wed., 6. Dr. Guttmann: Percussion, Auscultation, twice weekly; Diagnosis of Internal Diseases. Dr. Ewald: Selected Chapters in Special Pathology and Therapeutics, three times weekly; Percussion and Auscultation. Dr. Tobold: Laryngoscopy, with Practical Demonstrations, three times weekly. Dr. Fränkel: Antroscopy, or the Examination of Cavities of the Body by means of Sight; Courses of Laryngoscopy and Rhinoscopy. Dr. Bose: Laryngoscopy, with Demonstrations, once a week. Dr. Senator: General Semiology and Diagnosis, with Demonstrations and Practical Examinations, three times weekly; Diseases of Children, with Demonstrations, Sat., 11.

Diseases of the Nervous System.—Professor Westphal, once weekly. Dr. Hitzig: Lecture and Demonstration, twice weekly. Dr. Sander: Psychiatry, twice weekly, 6; Course of Diagnosis of Mental Diseases. Dr. Mendel: Civil and Criminal Responsibility, for medical and legal students, Wed., 3; Psychiatry with Demonstrations and Practical Exercises, Mon., Wed., and Sat., 6; Diseases of the Nervous System, including Mental Diseases, Mon., Wed., Thurs., and Sat., 5.

Materia Medica.—Professor Liebreich: Materia Medica with Experiments, Tues., Wed., Thurs., and Fri., 4; Anæsthetics with Experiments, Mon., 4; Practical Exercises in the Pharmacological Institute. Dr. Bergson: the Art of Prescribing, Mon. and Thurs., 5. Dr. Bernhardt: the Art of Prescribing, once weekly; Electro-Therapeutics, once weekly. Dr. Ewald: Dietetics, once weekly. Dr. Hitzig: Medical Electricity, Fri., 6.

Surgery.—Professor Jüngken: General and Special Surgery, Mon., Tues., Thurs., and Fri., 5; Hernia, Wed. and Sat., 5. Professor Bardeleben: Surgery, five days weekly, 11; on Wounds, Sat., 11. Dr. Ravoth: General and Special Surgery, six

times weekly. Dr. Mitscherlich : General and Special Surgery with Demonstrations, six times weekly, 10. Dr. Wolff : General and Special Surgery with Demonstrations, Mon., Wed., and Fri., 4; Bandaging, Wed. and Sat., 4. Diseases of the Urinary Passages, Bladder, and Rectum, with Demonstrations, Thurs., 4. Professor Gurlt : Fractures and Dislocations, Wed. and Sat., 4; Surgical Operations on the Dead Body, 9 to 11. Dr. Bosc : Fractures and Dislocations, three times weekly. Dr. Busch : Surgical Anatomy with Demonstrations, Mon., Thurs., and Sat., 8; Course of Bandaging. Dr. Güterbock : Gypsum and other Bandages, with Demonstrations, Sat., 6 to 7.30; Treatment of Wounds, Wed. 6. Professor von Langenbeck : Plastic Surgery, with Surgical and Anatomical Demonstrations, three times weekly, 12. Dr. Trendelenburg : Surgical Diseases of Children, Wed.; Diseases of Bones and Joints, Tues., Fri., and Sat. Dr. Pincus : Syphilitic Diseases, and Diseases of the Skin and Hair, Mon. and Thurs., 5. Dr. Burchardt : Syphilitic Diseases, twice weekly; Cutaneous Diseases, twice weekly. Dr. O. Simon : Syphilitic Diseases with Demonstrations, twice weekly; Skin Diseases, three times weekly.

Ophthalmology.—Professor Schweiger : the Theory of the Ophthalmoscope, Sat., 12; Ophthalmology, Tues. and Thurs., 12; Operations on the Eye, Wed. and Sat., 11. Dr. Hirschberg : Introduction to the Study of Modern Ophthalmology, three times weekly.

Otology.—Professor Lucae : Diseases of the Ear with Demonstrations. Dr. Weber-Liel : Demonstrations and Practical Course on Diseases of the Ear.

Odontology.—Professor Albrecht : Diseases of the Teeth and Mouth, Mon., Thurs., Sat. 6. Demonstrations, daily, 2.

Obstetrics and Gynaecology.—Professor Martin : Gynaecology and Midwifery, daily, 5. Dr. Schöller : Theoretical and Practical Midwifery, Mon., Tues., Thurs. and Fri. 4; Course of Operative Midwifery, with Exercises on the Phantom. Dr. Kristeller : Causes and Treatment of Sterility, Wed. 6; Exercises in the Newest Methods of Obstetric Examination and Operation. Dr. Cohnstein : Gynaecology, Wed. and Sat. 5; Midwifery, Mon., Wed. and Fri. 12; Courses of Operative Midwifery, with Exercises on the Phantom, Tues. and Thurs. 5; Dr. Fasbender : Gynaecology, Sat. 12; Obstetrics, Wed. and Fri. 4; Obstetric Operations with Exercises on the Phantom, Mon. and Thurs. 4. Dr. Mayer : Gynaecology, Wed. and Sat.; Tumours of the Female Sexual Organs, Wed.; Dr. Wernich : The Dietetic Management of Puerperal Women and Infants, Sat. 1; Obstetrics, Tues., Wed., Thurs., Fri.

Forensic Medicine, Hygiene, etc.—Professor Liman : Forensic Medicine for Medical Students, with Demonstrations, Mon. and Wed., 12.30. Professors Liman and Skrzeczka : Course of Medicolegal Examinations of the Dead Body and Forensic Practice, in the Anatomical Buildings of the Royal Forensic Institute, 1. Professor Liman : Forensic Medicine for Students of Law, with Demonstrations, Sat., 11 to 1. Professor Skrzeczka : Forensic Medicine for Students of Law, Tues., Thurs., and Fri., 6; Forensic Medicine for Medical Students, Mon., Wed., and Sat., 5; Select Subjects in Medical Police, twice weekly. Dr. Zülzer : Public Hygiene and Medical Statistics, with Practical Exercises,

Wed. and Sat., 2; Acute Infectious Diseases, Mon., 2. Dr. Burchardt : Hygiene, twice weekly. Dr. Ravoth : On the Care of the Sick and on Hospitals, Sat., 5. Dr. Falk : Violent Modes of Death, Tues., 6.

Clinical Instruction.—Professor Traube : Clinical Diagnosis, in the Charité Hospital, six times weekly 9 to 11. Professor Frerichs : Clinical Medicine, in the Charité Hospital, six times weekly, 11 to 12.30. Professor Meyer : Medical Polyclinic, five times weekly, 1. Dr. Henoch : Clinic of Diseases of Children in the Charité Hospital, Mon., Wed., Thurs., and Fri., 12; Polyclinic, daily, 1. Professor von Langenbeck : Clinical Surgery in the University Clinical Hospital, six times weekly, 2. Professor Bardeleben : Clinical Surgery in the Charité Hospital, six times weekly, 9 to 11. Professor Martin : Obstetric and Gynaecological Clinic and Polyclinic, in the Clinical Lying-in Hospital and in the Charité Hospital, daily, 9.30 to 11. Professor Schweigger : Diseases of the Eye, Mon., Wed., and Fri., 12. Professor Lucae : Diseases of the Ear (Polyclinic), Tues. and Fri., 9. Professor Westphal : Diseases of the Nerves and Mind, in the Charité Hospital, Mon., Wed., and Sat., 8.30 to 10. Dr. Lewin : Syphilis and Diseases of the Skin, in the Charité Hospital, Mon., Tues., Wed., Thurs., and Sat., 11.

UNIVERSITY OF BRESLAU.

The winter session at this university will commence on October 15.

History of Medicine, etc.—Professor Haeser : Medical Methodology, Thurs., 4; History of Medicine, Tues. and Fri., 4.

Anatomy.—Professor C. Hasse : Morphology of the Skeleton, once a week; Muscles and Viscera, daily, 11; Topographical Anatomy, four times weekly; Comparative Anatomy, three times weekly; Anatomical Demonstrations. Professor Grosser : Vessels, once weekly; Bones and Ligaments, Wed. and Sat., 11. Dr. Joseph : Syndesmology, once weekly; Osteology, twice weekly; Anthropology, three times a week.

Physiology.—Professor Heidenhain : Physiological Colloquies, Mon., 4; Experimental Physiology on the Organs of Sense and the Vegetative Functions, daily, 12; Practical Exercises in the Physiological Institute, daily in the forenoon. Professor Auerbach : the Principles and Methods of Microscopic Investigation, once weekly; Special Physiology of the Nervous System, twice a week. Dr. Gscheidlen : the Blood and Respiration, once weekly; on Physiological Method, twice a week; Exercises in Physiological Chemistry.

Pathology.—Professor Cohnheim : General Pathology, Tues., Thurs., Fri. and Sat., 2; Demonstrative Course of Pathological Anatomy, with Instruction in making Necropsies, Mon. and Wed., 1 to 3, Sat., 10 to 12; Experimental and Microscopical Exercises in the Pathological Institute, daily, in the forenoon.

Medicine.—Professor Biermer : Contagious Diseases, Fri. and Sat., 12; Pathology and Treatment of Diseases of the Respiratory Organs, Mon., Tues., Wed., Thurs., 12. Professor Grosser : Parasites of Man, once weekly. Dr. Ebstein : Diseases of the Organs of Digestion, once a week; Auscultation and Percussion, with Exercises, three times a week; Diagnosis of Internal Diseases, once a week. Dr. Berger : Diseases of the Nervous System, with De-

monstrations, twice weekly. Dr. Joseph : the Parasites of Man, twice a week.

Surgery.—Professor H. Fischer : General Surgery, daily, 8 ; Tumours, Sat., 8. Professor Klopsch : Diseases of the Urinary Organs, twice weekly. Dr. Paul : Practical Surgery, twice weekly. Dr. Richter : Resections, once weekly ; Selected Chapters of Forensic Surgery, three times weekly. Dr. Maas : Selected Chapters of Special Surgery, twice weekly ; Fractures and Dislocations, with Instruction in the Application of Splints and Bandages, three times weekly. Dr. Voltolini : Laryngoscopy and Rhinoscopy, Wed., 3. Dr. Sommerbrodt : Clinic Diseases of the Larynx and Pharynx, once weekly. Dr. Gottstein : Exercises in Rhinoscopy and Laryngoscopy, twice weekly.

Ophthalmology.—Professor Förster : Diseases of Refraction and Accommodation, Thurs., 12 ; Ophthalmology, with Demonstrations and Clinical Exercises, Mon., Tues., and Fri., 12. Professor H. Cohn : On Myopia, once weekly ; Course of Ophthalmoscopy, twice weekly ; Practical Ophthalmic Surgery, twice weekly. Dr. Magnus : Ophthalmoscopic Exercises on the Living and on Artificial Eyes, twice weekly ; Operations on the Eye, once a week.

Otology.—Professor Voltolini : Anatomy of the Organ of Hearing as far as regards its Diseases, Mon., 4. Dr. Gottstein : Treatment of Diseases of the Ear, once a week.

Dental Surgery.—Dr. Bruck : Anatomy, Physiology, and Development of the Teeth, once weekly ; Dental Surgery, four times a week.

Syphilis and Skin-Diseases.—Dr. Köbner : Exercises in the Diagnosis of Syphilitic Diseases, Sat., 11 to 1 ; Clinical Demonstrations of Diseases of the Skin and of the Acute Exanthemata, three times a week.

Obstetrics and Gynaecology.—Professor O. Spiegelberg : Diseases of the Ovary, Wed., 4 ; Midwifery, Mon., Tues., Thurs., and Fri., 4. Professor Freund : Gynaecological Operations, twice a week ; Diagnosis of Diseases of Women, with Exercises, six days weekly. Dr. Fränkel : Metrorrhagia in Pregnant, Parturient, and Puerperal Women, once weekly ; Obstetric Operations with Exercises on the Phantom, three times weekly. Dr. Landau : Diseases of Puerperal Women, once weekly ; Gynaecology, four times a week.

Materia Medica and Therapeutics.—Professor Haeser : Pharmacology, Mon., Tues., Thurs., Fri., and Sat., 5. Dr. Reymann : Selected Chapters of General Therapeutics. Dr. Lewald : Repetitions of Materia Medica, with Pharmacological Demonstrations, twice a week. Dr. Berger : Electrotherapeutics, once a week.

Forensic Medicine and Hygiene.—Professor Neumann : Forensic Psychology. Professor Friedberg : Public Health, with Demonstrations, Tues. and Fri., 4 ; On Responsibility, with Demonstrations, Wed. 4. Dr. Hirt : Diseases of Artisans, once weekly ; Public Health, once weekly ; Forensic Medicine, twice weekly.

Clinical Instruction.—Medicine : Professor Biermer, Clinic and Polyclinic, six days weekly, 10.30 to 12. Surgery : Professor Fischer, Clinic and Polyclinic, daily, 9.30 to 11. Diseases of the Ear, Larynx, etc. : Dr. Gottstein. Gynaecology : Professor Spiegelberg, five days weekly, 3. Psychology : Professor Neumann.

UNIVERSITY OF GETTINGEN,

The winter session begins on October 15, 1874, and ends on March 14, 1875.

Anatomy.—Professor Henle : Bones and Ligaments, Tues., Fri., Sat. 11 ; Systematic Anatomy, daily, 12 ; Topographical Anatomy, Mon., Wed., Thurs., 2 ; Dissections (with Dr. von Brunn, Prosecutor), daily, 9 to 4. Professor Krause : Normal Histology, 11 ; Pathological Histology, 12 or 2, each four times weekly. Dr. von Brunn : Exercises in Normal Histology.

Physiology.—Professor Herbst : General and Special Physiology, with Experiments and Microscopic Demonstrations, six days weekly, 10. Professor Meissner : Experimental Physiology of the Nervous System and Organs of the Senses, daily, 10 ; Researches in the Physiological Institute.

General Pathology.—Professor Krämer : General Pathology and Therapeutics, Mon., Tues., Thurs., Fri. 4 (or at other hours). Pathological Anatomy, Tues. and Fri. 2, Wed. and Sat., 12. Professor Marmé : General Pathology and Therapeutics, four times weekly, 6. Professor Meyer : Malformations of the Skull, once a week.

Materia Medica.—Professor Marx : Pharmacology with Prescriptions, Mon., Tues., Thurs. Fri., 2. Professor Marmé : Materia Medica, and Prescribing, with Demonstrations of Drugs and their Physiological and Toxic Action, four times weekly, 5 ; Electro-Therapeutics with Practical Exercises on Healthy and Diseased Persons, three times weekly, 2. Professor Husemann : Materia Medica with Demonstrations and Pharmacodynamic Experiments, five times weekly, 5 ; Repetitions on Materia Medica, with Instructions in Prescribing, Tues., Thurs., Fri., 2. Professor Wiggers : Pharmacy, six days weekly, 8. Professor von Uslar : Pharmacy, four days weekly, 4. Dr. Stromeyer : Pharmacy.

Forensic Medicine, Toxicology, and Public Health. Professor Marmé : Selected Chapters of Experimental Toxicology, Fri., 6. Professor Husemann : Narcotic Poisons, Mon., 2. Professor Krause : Forensic Medicine for Medical and Legal Students, Wed. and Sat., 4. Professor Meissner : Public Health, Mon., Wed., Thurs., 5.

Special Pathology and Therapeutics.—Professor Hasse : Lectures, Tues., Wed., Thurs., Fri., 4. Professor Krämer : Diseases of the Skin, and Syphilis, three times weekly.

Surgery.—Professor Baum : History of Surgery, Wed., 5 ; Surgery, five days weekly, 6, Sat. 3. Professor Lohmeyer : General Surgery, four times weekly, 3 ; Operative Surgery, four times weekly, 5. Dr. Rosenbach : Selected Chapters from General Surgery, once a week ; Repetitions on Special Surgery ; Operative Surgery, four times weekly, 5.

Ophthalmology.—Professor Leber : Practical Exercises on the Use of the Laryngoscope, Wed. and Sat., 12 ; Course of Operations on the Eye, twice weekly.

Obstetrics and Gynaecology.—Professor Schwartz : Midwifery, Mon., Tues., Wed., Thurs., and Fri., 3. Dr. Hartwig : Diseases of Lying-in Women, twice weekly ; Operative Midwifery on the Phantom, Wed. and Sat., 8.

Psychology.—Professor Meyer : Pathology and Treatment of Mental Diseases, Wed. and Sat., 3 ; Deformities of the Skull.

Clinical Instruction.—Medicine : Professor Hasse, Clinic and Polyclinic, daily, 10.30 to 12. Surgery :

Professor Baum, in the Ernst-August Hospital, daily, 9 to 10.30; Professor Lohmeyer, daily, 9. Ophthalmology: Professor Leber, daily except Sat., 12. Midwifery and Gynaecology: Professor Schwartz, Mon., Tues., Thurs., and Fri., 8. Psychology: Professor Meyer, Mon. and Thurs., 4 to 6.

UNIVERSITY OF LEIPZIG.

The Winter Session will commence on October 19, 1874, and end on March 15, 1875. The following courses of instruction will be given in the faculty of Medicine

Anatomy.—Prof. His: Human Anatomy (except the bones, ligaments, and vessels), daily, 2 to 4; Vessels, Mondays, 10; Dissections (with Dr. Rauber), daily, 8 to 4. Prof. Braune: Selected Chapters in Topographical Anatomy, one hour weekly; Bones and Ligaments, Wed. and Sat., 12; Dissections, for advanced students, daily, 2 to 7. Prof. Wenzel: Anatomy for Schoolmasters and other non-medical persons, Wed. and Fri., 6; General Human Systematic Anatomy (repetitions), Mon., Wed., and Fri., 5 to 7. Dr. Schmidt: Anatomy on the Living Subject, with reference to Surgical Diagnosis, Mon. and Thurs., 3. Prof. Rauber: Craniometry, Sat., 12; Histology, daily, 2 to 4. Prof. Ludwig (with Dr. Flechsig): Microscopical Demonstrations.

Physiology.—Prof. Ludwig: Sensation and Motion, four days weekly, 4; Physiological Exercises for advanced students; Physiologo-Chemical Exercises (with Dr. Drechsel); Physiological Demonstrations. Dr. Kronecker: Physiology of the Nerves and Muscles with reference to Electro-therapy, Wed., 7; Physiological Methods of Research, Fri., 5 to 7. Prof. Merkel: Physiology of Human Speech, Tues. and Fri., 3.

Hygiene.—Prof. Radius: Public and Private Hygiene, Wed. and Sat., 12. Prof. Hofmann: Hygiene, with Demonstrations, three hours weekly. Prof. Reclam: Hygiene of Towns and Dwellings, with demonstrations, Thurs. and Fri., 3; Public Sanitation, with experiments and demonstrations, Thurs. and Fri., 4; Exercises in Hygienic Research, Sat., 4 to 7.

Materia Medica.—Prof. Radius: Pharmacognosy, Mon., Tues., Thurs., and Fri., 12. Dr. Naumann: Pharmacodynamics, Mon. and Thurs., 6. Prof. Winter: Prescribing, with a sketch of the most important medicines, Wed. and Sat., 4. Dr. H. Herzel: Pharmacy (inorganic preparations) two hours weekly.

Pathology and Therapeutics.—Prof. Wagner: Special Pathological Anatomy, daily, 7.45 to 9; Exercises in Pathological Histology, two days weekly (with Dr. Trübiger); Pathological Demonstrations, according to opportunities, two months' courses; Researches in the Pathological Institute, daily, 8 to 12. Prof. Hofmann: Physiological and Pathological Chemistry, three times weekly, 2 to 4; Researches in the Pathologico-Chemical Laboratory. Prof. Thomas: Researches in Diagnosis, Sat., 3 to 5; Therapeutics, two hours weekly. Prof. Wunderlich and Dr. Baeltz: Auscultation and Percussion. Prof. Heubner: Pathology and Treatment of Local Diseases. Dr. Friedländer: Pathology and Treatment of Acute Constitutional Diseases. Dr. Furst: Pathology and Treatment of Diseases of Children, Mon. and Wed., 3. Dr. Hagen: Electro-Therapeutics, 7.

Surgery.—Prof. Thiersch: Lectures, four hours weekly. Prof. Braune: Operations with reference to Gunshot Injuries, Mon. and Thurs., 12. Prof. Schmidt: Orthopædic Surgery, Fri., 4. Dr. Schröter: Diseases of the Eye, three days weekly; Ophthalmoscopy, two hours weekly; Objective and Subjective Examination of the Eye, one hour weekly. Prof. Coccus: Ophthalmoscopy, Tues. and Fri., 6; Diagnosis and Treatment of Diseases of the Eye, Tues. and Fri., 7. Dr. Schön: Ophthalmoscopy, three hours weekly; Ophthalmiatric Researches, one hour weekly. Prof. Wendt: Lectures on the most important Diseases of the Ear, Nose, Fauces, and Larynx, with demonstrations. Dr. Hagen: Diseases of the Ear, two days weekly, 6; Laryngoscopy, Pharyngoscopy, and Rhinoscopy, two days weekly, at 7, in six weeks' courses.

Midwifery and Diseases of Women.—Prof. Germann: Diseases of Women, twice weekly, 7. Dr. Leopold: Pathology and Treatment of Diseases of Women, with demonstrations, four hours weekly; Obstetric Operations with Exercises, six hours weekly; Gynæco-Surgical Operations on the Dead Body. Dr. Haake: Deviations of the Uterus and their Treatment, one hour weekly; Special Chapters in Midwifery, two hours weekly; Repetitions in Theoretical Midwifery, three hours weekly. Dr. Ahlfeld, Theory of Midwifery, Mon., Tues., Thurs. and Fri. 5; Repetitions in Midwifery, including Exercises in Operations. Prof. Hennig: Repetitions in Midwifery, with Exercises on the Phantom, daily, 5. Prof. Crédé: Obstetric Demonstrations, Tues. and Fri., 3; Obstetric Operations with Exercises, Mon., Tues., Thurs. and Fri., 4, and Thurs. 3. Dr. Kormann: Obstetric Operations. Dr. Meissner: Theory and Practice of Operative Midwifery.

Clinical Instruction.—Prof. Wunderlich: Medical Clinic, in the City Hospital, daily, 9 to 10.30; Practical Exercises for Clinical Pupils, two hours (afternoon) weekly. Prof. Wagner: Medical Polyclinic at 2 daily, except Wednesday. Prof. Thomas: District Polyclinic. Prof. Thiersch: Surgical Clinic, daily, 10.30 to 12. Prof. Schmidt: Surgical Polyclinic, daily, 11. Prof. Coccus: Ophthalmic Clinic, daily, 12. Prof. Crédé: Obstetric and Gynaecological Clinic and Polyclinic, daily, 8, and 3 P.M. on Mon. Prof. Hennig: Children's Clinic, Mon. and Thurs. 9. Dr. Furst: Children's Polyclinic, Tues., Thurs. and Sat. 3. Prof. Merkel: Diseases of the Larynx (with Practical Exercises), Mon., Wed. and Sat., 3. Prof. Wendt: Diseases of the Ear. Dr. Hagen: Diseases of the Ear, daily, 11 to 1.

Forensic Medicine.—Prof. Sonnenkalb: Forensic Medicine for Law Students, Tues. and Fri., 4; Forensic Psychology, Wed.; Practice of State Medicine, Mon. and Thurs. 5 to 6.30. Prof. Reclam: Forensic Medicine with Demonstrations and Experiments, Thurs. and Fri., 6. Dr. Siegel: Courses of State Medicine. Dr. Meissner and Dr. Kormann: Forensic Midwifery, each two days weekly, at 6.

The following courses belong to the Philosophical Faculty.

Comparative Anatomy.—Prof. Leuckart: Comparative Anatomy, six days weekly, 12. Prof. Carus: Comparative Anatomy of Vertebrates, four days weekly, 10; Anatomy and Physiology of Domestic Animals, four days weekly, 12. Prof. E. H. Weber: Anatomy of the Nervous System of Fishes.

UNIVERSITY OF MUNICH.

The following courses of instruction will be given during the winter session, commencing November 3.

Anatomy.—Professor von Bischoff: General Anatomy, Myology, and Splanchnology, daily, 2; Dissections (with Professor Rüdinger), daily, 8 to 12, and 2 to 4, except Saturday afternoon. Professor von Hessling: Microscopic Examinations of Normal Tissues, three times weekly, two hours each time. Professor Kollmann: General and Special Histology, three times weekly; Use of the Microscope, three times weekly, 2 to 4; Anatomy for Artists. Professor Rüdinger: Bones and Joints, daily, 3, in first half session; Vessels, daily, 3, in second half session; Physical Anthropology.

Zoology.—Professor von Siebold, six days weekly, 1.

Physiology.—Professor Voit: Physiology of Nutrition, daily, 9; Exercises in the Physiological Laboratory; Researches in the Laboratory for advanced pupils. Professor Ranke (in the Philosophical Faculty): Lectures on Medical Physics with Practical Exercises, Mon., Tues., Wed., Thurs., 8; Experimental Physiology for advanced students; Human Physiology with reference to Anthropology, Mon., Tues., Wed., and Thurs., 3.

Pathology.—Professor von Buhl: General Pathology and Pathological Anatomy, Mon., Tues., Thurs., Fri., 10; Practical Pathological Anatomy (microscopic), Mon., Tues., Thurs., 11 to 12.30; Repetitions in Pathological Histology. Professor Bollinger: Selected Chapters in Comparative Pathology, with demonstrations, twice weekly.

Medicine.—Professor von Gietl: Physical Diagnosis, Mon. and Thurs., 4. Professor von Ziemssen: Special Pathology and Therapeutics, daily, except Sat., 5; Clinical Instruction in Physical Examination, Mon. and Thurs., 6 to 8. Dr. Brattler: Physical Diagnosis. Dr. J. Bauer: Physical Diagnosis, three times weekly; Diseases of the Kidneys, once weekly. Professor Hauner: Diseases of Children. Professor Bollinger: Parasitic Diseases.

Surgery.—Professor von Rothmund: Hernia, Wed., 4. Professor Nussbaum: Surgery, Mon., Tues., Thurs., and Fri., 4; Bandaging. Dr. Ruprecht: On Fractures, with regard to Military Surgery, twice weekly, 12. Dr. Schweninger: Practical Demonstrations of Surgical Anatomy on the Living Subject, twice weekly; Hernia, once weekly. Dr. Mayer: General Surgery, three times weekly; Aural Surgery, twice weekly. Dr. Posselt: Syphilis, twice weekly; Use of Instruments and Bandages. Dr. Oertel: Diseases of the Larynx and adjacent Cavities, twice weekly; Course of Laryngo-Rhinology. Dr. Schech: Pathology and Treatment of Diseases of the Larynx and Trachea, with a Course of Laryngoscopy, twice weekly. Professor Koch: Diseases of the Mouth and Teeth.

Ophthalmology.—Professor A. Rothmund, jun.: Ophthalmic Surgery, four times weekly, 6; Course of Ophthalmoscopy, Wed. and Sat., 6; Course on Diseases of Refraction and Accommodation.

Obstetrics and Gynecology.—Professor von Hecker: Theoretical Midwifery, five days weekly, 9; Obstetric Operations, four times weekly, 5. Dr. Amann: Theory of Gynecology, three times weekly.

Materia Medica.—Professor L. A. Buchner: Pharmacy, four days weekly; Chemical Exercises in the Pharmaceuto-Chemical Laboratory, daily, at

midday; Exercises in Dispensing, with Conversations on Drugs, four evenings weekly. Professor Seitz: Materia Medica and Prescriptions, five days weekly, 11. Professor J. Buchner: Comparative Materia Medica and Pharmacotechnics, 7. Dr. von Böck: Action of Medicines, with Experiments; Art of Prescribing, with Practical Exercises, once weekly.

Hygiene.—Professor von Pettenkofer: Practical Instruction in the Hygienic Laboratory, daily; Lectures on the Mode of Diffusion of Typhus, Cholera, and Yellow Fever, Wed. and Sat., 10 to 12. Dr. Forster: Articles of Food and their Adulteration, once weekly.

Forensic Medicine, etc.—Professor Martin: Forensic Medicine, four times weekly; Practical Instruction, daily, 11.

Clinical Instruction.—Medicine: Professor von Gietl and Professor von Ziemssen, daily, 9. Professor von Ziemssen: Clinical Conversations, once weekly, 8 to 10 P.M. (class limited in number.) Professor Seitz: Medical Polyclinic, daily, 12. Surgery: Professor von Nussbaum, daily, 8. Dr. Mayer: Surgical Polyclinic; Demonstrations on Patients. Obstetrics and Gynecology: Professor von Hecker, Midwifery Clinic, four times weekly, 10. Midwifery Polyclinic: Dr. Amann, Gynecological Clinic and Polyclinic, three times weekly. Diseases of Children: Dr. Hauner; Dr. H. Ranke, daily, 3. Psychology: Dr. Gudden, Wed. and Sat., 4 to 6. Ophthalmology: Professor A. Rothmund, jun., daily, 11. Syphilitic and Cutaneous Diseases: Dr. Posselt, twice weekly.

UNIVERSITY OF WÜRZBURG.

The entries for the winter session will commence on October 15; the lectures will begin on November 3.

Anatomy.—Professor von Kölliker: General Anatomy, Muscles, and Intestines, Tues., Wed., Fri., and Sat., 11 to 1; Normal Histology, Tues. and Fri., 6 to 8; Dissections, with Dr. Wiedersheim. Dr. Wiedersheim: Bones and Ligaments, three hours weekly. Dr. Gierke: Microscopic Anatomy, and Physiology of the Central Nervous System, three times weekly.

Physiology.—Professor Fick: Special Physiology, Mon. and Fri., 10; Physiological Exercises and Researches.

Pathology.—Professor Rindfleisch: General Pathology, daily, except Wed., 11; Course of Demonstrations and the Use of the Microscope, daily, except Wed., 2; Practical Pathology in the Institute.

Medicine.—Professor Gerhardt: Medical Clinic, six days weekly, 9; Special Pathology and Therapeutics, five days weekly, 5. Dr. Stöhr: Special Pathology and Therapeutics, five times weekly; Repetition on Internal Medicine, six times weekly; Course of Clinical Diagnosis; History of Medicine, twice weekly. Dr. Rossbach: Physical Diagnosis, Tues. and Thurs., 6. Dr. Emminghaus: Physical Diagnosis, five times weekly.

Surgery.—Professor von Linhart: Surgical Clinic, six days weekly, 10; Course of Operative Ophthalmic Surgery, 3 to 5. Professor Dehler, Theory of Surgery, daily, 3. Dr. Riedinger: Fractures and Dislocations, three times weekly; Clinical Course of Surgical Diagnosis, four times weekly.

Ophthalmology.—Professor Ritter von Welz: Ophthalmic Clinic, with Ophthalmological Examina-

tions, Tues., Thurs. and Sat., 11; Course of Operations on the Eye, Mon., Tues., Thurs., Fri., 2; Lectures on Ophthalmic Operations, once weekly. Dr. Helfreich: Ophthalmology with Clinical Demonstrations, four times weekly; Ophthalmotropy with Practical Exercises, twice weekly; Course of Operations on the Eye.

Diseases of the Ear.—Professor Baron von Tröltzsch: Pathology and Treatment of Diseases of the Ear, three times weekly.

Dental Surgery.—Professor Ritter von Welz, three times weekly.

Midwifery and Diseases of Women.—Professor Scanzoni von Lichtenfels: Obstetric and Gynaecological Clinic, five times weekly, 12; with Exercises in Examination, twice weekly, 8. Dr. J. B. Schmidt: Course of Obstetric Operations. Professor Müller: Theory of Midwifery, five times weekly, 4.

Chemistry, Materia Medica and Toxicology.—Dr. Schubert: Pharmaceutical Chemistry and General Chemistry, each four times weekly. Dr. Rossbach: the Theory of Medicines and Poisons, with Experiments on Animals, Mon. and Wed., 6; Fri. 6 to 8; Introduction to Practical Pharmacy, daily, 2 to 7.

Psychology.—Professor von Rinecker: Psychological Clinic, three times weekly, 5; Diseases of the Mind, twice weekly, 11. Dr. Emminghaus: Forensic Psychology, twice weekly; Diseases of the Brain, once weekly.

Special Subjects.—Professor von Rinecker: Clinic for Syphilis and Diseases of the Skin, three times weekly, 11; Diseases of the Skin, once weekly.

THE PROPHYLACTIC TREATMENT OF CHOLERA. By PROFESSOR LEBERT OF BRESLAU.

(Continued from page 597.)

Disinfection during the Prevalence of Cholera.—I confine myself here to the most important points on this subject. Much has been said concerning disinfection, both for and against. Some look upon cholera excreta as the proper poison-carriers, others regard the excreta as incapable of contagion. Some have a blind belief in the protection afforded by these agents against infection, others deny them any value whatever. If anyone would discover cause to leave the whole course of the disease to chance, because of the difference of opinion concerning this as on nearly all the questions of cholera, he would commit a great and a most deplorable mistake.

Physicians are almost unanimous in the belief that a specific organic germ lies at the basis of cholera. The opinion gains ground from day to day that this germ is not only organic, but also organised. Whether this germ, which has entered the organism of the individual attacked directly or indirectly from the earth, water, privies, vaults, etc., is to be sought in the excreta or other emanations or not, physicians are mostly unanimous in believing that patients may in some way or other assist in disseminating the disease.

It must be the continual effort of science, therefore, to prevent as much as possible the injurious action of the cholera-germs before or after their entrance into the human organism. Convinced of the value of disinfection in this regard, I shall now bring forward the most important points concerning it from a practical point of view.

Above all things it is essential to make a distinction between disinfection in treatment and the

common antiseptic methods employed in the trades. A much greater quantity of disinfecting material is necessary to destroy exuberating germs than to prevent their development; a series of new experiments have fully convinced me of this fact. The small quantities which suffice to prevent sepsis in solid and fluid foods by no means suffice to disinfect infected substances, fluids, etc. The work of disinfection is to destroy the germs or lower organisms already developed in considerable numbers, and if preventive disinfection shall have been extensively practised before the outbreak of an epidemic a decided advantage will have been gained. Another important preliminary point is this: there is a great and not sufficiently recognised difference between disinfection and the destruction of odours. The destruction of odour reaches only a few of the products of fermentation, of decomposition and infection. True disinfection should reach the cause, the fundamental basis of all these processes.

Who shall take charge of the disinfection? Best the authorities, and in the most rigid way, assisted, perhaps, by those who are in any way independent enough in circumstances to be able to share the costs. Disinfection is never so generally and thoroughly carried out by private parties as to be of any real protective effect. But there are numerous instances where large cities have been most successfully disinfected by the authorities.

I will now make a few comments upon the agents of disinfection, taking them in the order of efficiency, and I commence with the best and most potent.

1. *Carbolic acid* or phenylic acid is the best antiseptic and antimycetic agent of all the well-known and thoroughly tested means. Water which contains carbolic acid in the proportion of 2 per cent. will destroy great quantities of protomycetic masses. The pure acid, unmixed with any of the numerous substances suggested, is by far the best and most to be recommended. It is comparatively costly, but is more reliable than any of the cheap disinfecting substances. Its permanent odour in houses and dwellings is disagreeable, but one soon becomes accustomed to it. For large accumulations of excreta, privy-vaults, etc., 200 to 250 grammes of the acid should be dissolved in 3-4 litres of water and poured in once a day, best with a watering-pot. For privies 100 to 200 grammes suffice, for large night-stools 30 to 50 grammes a day, and for night-vessels during the disease, a few grammes from time to time. The floor of the room should be sprinkled every day with a 2 per cent. solution to attack the germs floating in the air, and if the room be always moist the solution may be mixed with sawdust, which should not be made too wet, however, and then after strewing the floor the room should be swept out or cleaned up. The washing may also be sprinkled with the same solution before it is put into boiling water. The heat of the bake-oven, about 100° C. (212° Fahr.), should be selected for linen, which will not bear boiling water, and this dry heat is also the chief means of disinfection of mattresses, garments, etc. Less valuable materials, as straw beds, etc., are best burned up, and one should not be too economical in this regard in cholera times. Küchenmeister's suggestion to burn up the excreta with fine and dry sawdust is most especially to be recommended.

2. *Sulphurous acid* has hitherto found but little application in cholera, although its fumes have long been employed in numerous ways for the destruction of parasitic germs and organisms. As vaults, privies,

vessels, etc., cannot be disinfected with pure sulphurous acid, I made a series of experiments with water impregnated at 2 per cent. Even minimal quantities (1-10,100th) suffice to arrest the development of protomyceta, though a 2 per cent. solution is necessary to destroy them when already luxuriating in growth. This solution holds for weeks without any alteration in the degree of oxidation of the sulphurous acid. Its penetrating odour is only transitory. It is easy to make a 2 to 4 per cent. solution of sulphurous acid in great quantity, and it is cheaper than any other disinfecting agent. From one to several litres of this fluid may be used daily for vaults, privies, and 50 to 100 grammes for night-stools and small vessels. Disinfection of the washing and bedding material may be accomplished by the development of fumes of sulphurous acid from burning sulphur in perfectly close rooms after previous sprinkling with the solution mentioned. My suggestion of using water impregnated with sulphurous acid, as in Lister's bandage, for the prevention and treatment of infection of wounds by bacteria, has not been subjected to the test of experience. My experiments with it, however, justify the hope that we may possess in it a potent, cheap, and easily applied method of disinfection for a wide range of cases.

3. *Green vitriol*, the sulphate of the oxide of iron, had at one time a great but only ephemeral reputation as a disinfectant. We have become convinced, however, that it is more potent in disguising bad odours than in energetically attacking the germination of parasites. Its oxidation of organic combinations does not lead to the destruction of injurious myceta. The more this agent was used, the more have its combinations with carbolic acid, permanganate of potash, etc., increased, a proof that its universal antiseptic action has been more and more distrusted.

4. *The permanganates* develop a rapid but quickly vanishing disinfectant and parasiticide action; hence it has been recommended in multiform combinations with sulphate of iron, chloride of lime, etc. I cherish a distrust against all compound disinfectants, as it seems to be imagined that any uncertainty of action on the part of individual substances will be relieved by a multiplication of agents or by chemical combinations; theories which rest, for the most part, on uncertain or obscure conceptions.

5. *Chloride of lime* is one of the oldest but certainly not one of the best disinfecting agents, notwithstanding its continued official character. It destroys bad odours, but affects but little the germs and seed of parasites. Its odour, if developed in sufficient quantity, is only partially parasiticide at most, is as unhealthy as disagreeable, and is even at times injurious.

The same uncertainty of action pertains to *Süvern's* disinfectant, which consists of a mixture of lime, magnesium, chloride and tar, and of lime and coal.

Carbolic acid is therefore the best means hitherto known for disinfection of the air, of excreta, sink-holes and privies. The efficacy of sulphurous acid water remains still to be proven. A boiling heat is the best method of destroying the dangerous germs in drinking-water. The washing, bedding, and clothing are most thoroughly disinfected, besides, by fumigation with sulphur or sprinkling with carbolic water, by dry heat in ovens, and by maceration in boiling water when the quality of the material admits it.

Individual Protection.—It is generally believed that the fear of cholera predisposes to it. My experience

does not confirm this view, as I have found that the greater the fear, the more minutely are all the precautionary measures adopted. These are, above all things, of hygienic nature, and the apparent effect of preservative agents depends upon the well-known affinity existing between charlatanism and credulity. The most favourable hygiene plays here the chief rôle; avoidance of cold, disturbances of digestion, errors in diet, excesses of every kind, mental disquietude, in a word, observance of moderation and caution of every kind. The accustomed mode of life, if normal and rational, should be by no means changed. But the vegetables whose abundance of water might easily induce diarrhoea, as cucumbers, melons, etc., should be taken more cautiously and in less quantity. Of course all unripe vegetables or those inclined to decay, all drinks of not perfectly normal quality, are strictly to be avoided. A good animal diet should be ordered for feeble and sickly patients, with old wine, the addition of a little rum or cherry-water to the tea; the feet and body should be kept warm by flannels, if the circumstances of the individual permit these comforts. Among the poorer classes small quantities of brandy may take the place of the wine, and where the diet cannot be substantial, good, warm, nutritious soups and hot coffee may be recommended. The physician must of course advise his patients, especially in cholera times, according to the circumstances of individual cases. It is on this account that soup and other eating-houses should be carefully organised, on the most extensive scale possible, before or at the beginning of an outbreak of the disease. Thorough, regular, and abundant disinfection is an integral factor in individual protection. Useless contact with patients or unnecessary visits to houses where cholera prevails should be avoided, unless it is a case of near relationship, or unless the individual, on account of his avocation or from motives of philanthropy, willingly exposes himself to danger which the greatest care will not always exclude. Among the never-to-be-forgotten suggestions for individual protection is the advice to treat properly, or have treated, every form of diarrhoea, no matter how light. I learned the exceeding value of this and other prophylactic suggestions in a large practice during the fearfully murderous epidemic in Paris, 1849. There is no time when the physician may prove himself a friend to the family in such degree as during the prevalence of an epidemic of cholera.

When a number of cases have occurred in a house, the remaining inmates should be advised to leave it. The poor should go to the previously arranged houses of refuge, the wealthier to a residence in another part of the city or to another place in the country for a few weeks, but always instructed with all the suggestions which may prevent the development of cholera in the places visited. All who are very fearful of the disease, and who may be able to leave the infected locality, should do so as early as possible, alone or with their families, but always instructed of course as to the best means of prophylaxis.

PATHOLOGY.

RAYMOND AND VULPIAN ON THE PATHOLOGY OF JAUNDICE.—*Le Progrès Médical*, in reporting the proceedings of the Société de Biologie of Paris

(July 13, 1874), gives the following abstract of M. Raymond's paper. M. Raymond stated that he had observed an interesting fact throwing light on the pathology of jaundice, in two phthisical patients under the charge of M. Vulpian. In his pathological course, M. Vulpian, wishing to elucidate the various methods in which jaundice originates by means of experiments, remarked that, next to obstruction by biliary calculi, the most common form of jaundice is that produced by swelling of the mucous membrane of the biliary passages, the so-called catarrhal jaundice; also that Broussais believed in an extension of the inflammatory process, in what he called gastro-duodenitis. However, his theory was not popular, and it became the fashion to attribute the jaundice to hepatic congestion; but Virchow confirmed Broussais, showing that the obstruction in these cases was caused by a plug of mucus very near the duodenal opening of the common bile-duct. M. Vulpian added, 'I have twice seen this in men, and have very often verified it in the dogs on which I experiment.' This propagation of duodenitis to the biliary passages is very common in dogs, and it often happens that a number of symptoms are set up, like those collectively known under the name of black or malignant jaundice (*ictère grave*); the dog dies with hæmorrhage and ataxo-adyamic symptoms.

The first of M. Raymond's cases was an old woman of sixty-four, who was in the third stage of phthisis. She had been in the hospital from November 10, and the disease followed its usual course, till January 15, when she was attacked with the most intense jaundice. The coloration was most marked in the skin, the conjunctivæ, and the lower surface of the tongue. Her urine contained a large quantity of bile-pigment, and the jaundice lasted till her death, three days afterwards.

The second case was a young woman aged twenty-six years, also phthisical, who was admitted an in-patient in September 1873; she became yellow on February 22. Like the first case, her jaundice was general. The feces were almost colourless, the urine contained bile-pigment largely, and the patient died four days afterwards. The results of *post mortem* examination were identical in both cases, except as regards the thoracic lesions. The gall-bladder was full of fluid; there were no gall-stones; the bile-ducts were moderately distended. On opening the duodenum, and pressing upon Water's papilla, some drops of thick mucus escaped, glutinous, and resembling bile in colour: the bile-ducts were healthy, except that their walls were swollen; there were no granulations, nor induration, and they were not compressed by any swollen glands. The duodenum was thickened and red; at its lower portion Brunner's glands were seen to be hypertrophied, and to have the appearance of grains of rice, giving the mucous membrane a resemblance to shagreen. Here and there its membrane was still more raised, though slightly, probably from hypertrophied follicles. Microscopic examination, in the recent state, demonstrated very active congestion of the vessels of the mucous membrane of the duodenum. On examining Brunner's glands, their acini were found enlarged; and they were filled with swollen epithelial cells. Sections made perpendicularly to the mucous membrane, after suitable handling, showed still more plainly the multiplication of the epithelial elements in Brunner's glands, and in some preparations the solitary glands were found to be increased in size. It was thus clear that, in

both these cases of duodenitis, the inflammation had reached the ductus choledochus, which was obstructed by a plug of mucus, whilst the retention of bile thus induced had brought on jaundice. The reaction against Broussais' views has gone too far in denying the existence of duodenitis, for it really exists. Broussais' mistake lay in exaggerating its importance.

At the same sitting M. Poncet (of Lyons) made some remarks on hæmatic jaundice, and narrated his experiments on the urine of patients attacked with icterode coloration, as a sequel of large losses of blood. He has made many experiments on animals. After injecting blood into the subcutaneous areolar tissue in dogs, he has seen the urine also become reddish brown. This colour is due to an excess of urinary pigment, in consequence of the destruction in the tissues of a great number of red blood-corpuscles. In these cases there was no increase of bile-pigment.

W. BATHURST WOODMAN, M.D.

BENEDIKT ON THE ANATOMICAL CHANGES IN HYDROPHOBIA CANINA.—The long-continued epidemic of last winter has, through the assistance of his colleagues of the Imperial Veterinary School in Vienna, furnished Dr. Benedikt (*Wiener Mediz. Presse*, June, 1874), with numerous preparations from the brain and spinal cord of different animals that had been attacked with rabies. Before describing these, the author discusses the difference presented by the disease as seen in man and in dogs, which has also a special significance with reference to the anatomical appearances. In both the disease begins with a restless melancholia. In the dog this passes into raving madness, while in man this form of mental affection is wanting. In man illusions and hallucinations take but small share in the symptoms, while in dogs they are plainly a prominent feature. In man there is the greatest degree of hyperæsthesia, with highest possible susceptibility for convulsions; in dogs, diffused paralysis and aphonia are among the earliest and characteristic symptoms. In the human being there is the most extreme reflex excitability in the movements of deglutition, so that not only the raising a glass to the mouth, but even the sight of fluids, will induce violent spasmodic action in those organs; whereas in dogs there is a paralysis of deglutition for fluids. In man the severest spasms of the respiratory muscles are present, so severe as sometimes to cause asphyxia. Such spasms are not observed in dogs, which die generally from exhaustion.

Dr. Benedikt has studied the pathological changes by making seven separate vertical sections through the hemispheres in dogs, and has observed such plain and striking pathological changes as could, he observes, only have been previously overlooked by reason of an imperfection of the methods of investigation.

In the first place, there is noted an abnormal distension of the meningeal vessels, and the accumulation around them, and in the meshes of the pia mater, of inflammation-corpuscles, together with a nucleolated exudation. This exudation is strongly refractive of light, is colourless, and under high magnifying powers is seen to consist of punctiform nuclear substance (granular disintegration). Striking changes are observed in the grey matter of the convolutions, and in various parts of the nervous centres. One of the coarser changes observed was the presence of numerous holes, or spaces, which, when magnified eighty or ninety diameters, were seen to

be filled with a material which also refracted light. This mass, under the high powers of the microscope, consisted of a granular or nuclear substance, in which were single hyaloid and colourless corpuscles, of the size of a distended nucleus of a blood-corpuscle. Inflammatory corpuscles were to be seen in both these masses. In the larger spaces, nerve-cells also were found. Dr. Benedikt further describes what he calls a peculiar condition of the hardened brain, especially in the finer sections. The slightest pressure forced out upon the surface shining masses, which under the microscope proved to be myelin (colloid? *Rep.*). These masses were often found lying detached on the surface of the section, and presented a greenish lustre. The author states that he has seen the same in the spinal cord of a horse that had suffered from rheumatic tetanus, and that he had regarded it as a softening and chemical alteration of the substance of the spinal cord.

The signs of inflammation are not presented everywhere in the pia mater, but only in certain parts. The distribution of these in the grey matter and in the central white substance throws a new light, according to Dr. Benedikt, upon the nature of the 'granular disintegration.' (A diagram intended to illustrate this point is given.) From what he has noted, it is concluded that the pathological process in this disease consists in acute exudative inflammation, with hyaloid degeneration, which doubtless arises from the exudative infiltration of the connective tissue. It is characteristic with reference to these inflammatory products that the attack, in man at least, is ushered in with rigors. The hyperæmia and nuclear proliferation is concurrent with that form of diffused inflammation which Lockhart Clarke has designated as 'granular disintegration,' and so far, the author considers, the anatomical obscurity of this disease is dispelled. The morbid process, in man, is doubtless essentially the same. The usual *post mortem* appearance is congestion and softening, which may have no especial value except as following asphyxia.

Dr. Benedikt states that there are in literature only two trustworthy reports, viz., by Meynert, who found much the same appearances as the author. The spaces, or holes, are regarded by Meynert as being the result of the hardening of the brain-substance. In two other cases Meynert found hypertrophy of the connective tissue in the posterior columns, with molecular and amyloid degeneration in the anterior columns. The nerve-cells of the cortical matter had also undergone partly molecular, and partly sclerotic change.

W. B. KESTEVEN.

RAYNAUD ON PSEUDOMEMBRANOUS ENTERITIS.—M. Raynaud (*Le Progrès Médical*, p. 413) describes a case in which some fragments of membrane were passed by a woman, sixty years old, with cardiac disease. The woman had experienced no colicky pains; whereas in the cases reported by M. Siredey, the persons had suffered most intense pains, almost as severe as labour-pains, and in all similar instances reported it was just the same. One of the pieces was more than a yard long, and might have been mistaken for a tapeworm. It was a hollow cylinder, closed at its ends by a flattened piece of membrane. Its external diameter was nearly a centimètre, its internal one about five millimètres. The microscope showed traces of mucine, and a consider-

able quantity of leucocytes. The discharged matters were, in fact, concretions of intestinal mucus. How they were formed is difficult to explain; but M. Raynaud thinks it reasonable to suppose that they were the result of a deposit of mucus on the inner coat of the intestines, which, becoming detached, were by the peristaltic action of the bowels formed into tube-like bodies. In the discussion which followed the presentation of the specimen, M. Debosc thought that gradual contraction of the tube took place after its detachment from the intestine. M. Carville, from his experience of the peristaltic action observed in animals, could not believe that the tubes were formed as M. Raynaud suggested.

W. C. GRIGG, M.D.

SURGERY.

RÉLIQUET ON OBSTRUCTION OF THE LEFT EJACULATORY DUCT BY CONCRETIONS FROM THE VESICULA SEMINALIS (SPERMATIC COLIC).—M. Réliquet relates in the *Gazette des Hôpitaux*, September 3, 1874, the case of a hairdresser, aged thirty-five, married, pale, thin, delicate, and exhausted-looking, who consulted the author on March 12, 1874. For several years he had often suffered, when at stool, from the emission of a small quantity of thick white liquid. For two months he had experienced pain, extending from the anus to the perinæum, on emissions during coitus or when emptying the bowels. The erect posture and walking provoked frequent micturition. Attempts to retain his urine caused acute pain and cold sweats. The pain lasted four or five minutes after urination. He lost desire to sleep. Venereal desires and erection provoked pain. During one month and a half he had passed small quantities of blood with his urine.

On March 12, a gum elastic bougie (French, no. 20) was passed easily into the bladder, but caused excessive pain in the deep part of the urethra. He was sounded for stone the next day, but no foreign body was discovered in the bladder. On examination from the rectum, the left vesicula seminalis was found swollen, hard, and smooth. It was painful on pressure. After the sounding, an attempt was made to pass the bougie once more, but the instrument was arrested at the neck of the bulb, and then withdrawn. After two or three minutes of extremely sharp cutting pains in the penis and the anus, the patient stooped down, and, emptying the bladder, expelled as many as forty small opaque white bodies, about the size of a small pin's head or a lentil. They presented facettes and blunt angles, like prostatic calculi, but their consistence was soft, and they could be crushed between the fingers. To the naked eye, they appeared to be formed of a white homogeneous material devoid of any capsule.

After the passage of these bodies, the symptoms quickly subsided, and, on examining from the rectum on the third day, the left seminal vesicle was found of the same size as the right.

On March 27 the man had returned to his usual occupations, and only had to pass urine twice in the night.

Professor Robin, who examined the concretions, sent M. Réliquet the following report. The concretions, opaline, transparent, had a diameter of from one to two millimètres. Their substance, under the

microscope, was marked by very fine and very short rectilinear striæ, parallel, closely approximated to each other. Acetic acid caused the striated condition to disappear, and rendered the substance quite translucent, and homogeneous. At the same time it demonstrated numerous spermatozooids rolled together in the concretions formerly marked by the striæ. Where the striation was absent or scarcely marked on the concretions, which were of various forms, such as M. Robin has shown in the vesiculæ seminales of many healthy individuals (Charles Robin, *Leçons sur les Humeurs*, Paris, 1874, 2nd edition, p. 443), these bodies had the aspect of normal ones. They had similar reactions to acetic acid, reactions which were not only those of mucus. Their volume was enormous, compared with that of the concretions in normal vesiculæ, and their consistence a little greater. But, they only represented normal corpuscles, which had accidentally attained gigantic proportions, and englobed the spermatozooids in the ordinary way.

Réliquet insists much on these facts in making the diagnosis; 1. That the first pain is produced suddenly at the time of coitus; 2. That subsequently every erection, or even every desire for coitus produces pain. They are, he says, the subjective symptoms. These combined with the objective signs, especially with the uniform swelling of the seminal vesicle, should lead to a correct diagnosis.

JOHN CROFT.

LINCOLN ON RETROPHARYNGEAL ULCERS CURED BY EXTERNAL ASPIRATION.—Dr. Lincoln, of New York (*New York Medical Record*, September, 1874), relates a case in an infant, five months old, in which he opened a large pharyngeal abscess with a guarded bistoury. As it formed again with considerable swelling externally, he, by means of the pneumatic aspirator, emptied the abscesses. This operation was performed four times on the right side, and three times on the left, with perfect success, no external mark being left behind.

STEURER ON A NEW ASPIRATOR.—The instrument is meant to obviate the danger of wounding any internal vital organ whilst the fluid is being drawn off, and also to be able to clear the cannula whilst the instrument is *in situ*. It consists of a glass cylinder, of a capacity of eight ounces, with a piston-rod worked with a rack by means of a key. The rack apparatus can be removed without affecting the instrument, and it can be worked as an ordinary syringe. There is a stop-cock to inlet and outlet, fixed at the base of the cylinder. The trocars are screwed on a rod, which is placed in a tube and passes through a cap of India-rubber packing, so that the more the cap is screwed down the tighter the packing becomes. The cannulæ are screwed on to this aforesaid tube; different sizes of trocar and cannula can be used to the same instrument. The trocar is withdrawn as soon as it has been inserted deep enough, and in case of any plugging it is pushed down so as to free any obstruction. The apparatus is made by Messrs. Siemen and Co. It has been used many times with success.

W. C. GRIGG, M.D.

OPHTHALMOLOGY AND OTOTOLOGY.

HOSCH AND SATTLER ON SEROUS CYSTS OF THE IRIS.—In Zehender's *Klinische Monatsblätter für Augenheilkunde* for April and May, Dr. Hosch of Basel and Dr. Sattler of Wien, have papers on the serous cysts which occur in the iris. The theories given as to their origin are discussed, that of Von Wecker being that all such cysts have their origin from the folding in and attachment of such folds of the iris, either with or without a wound in the cornea; while Rothmund holds that they have their origin only by the carrying of corneal epithelial cells into the iris, after or during the infliction of a corneal wound, and that these cells increase in their new position, secrete, and so form a cyst within the iris-tissue itself. Dr. Hosch describes the microscopic anatomy of an eye, in which an iris-cyst had occurred after a wound, and which was removed on account of sympathetic ophthalmia of the other eye. The cyst was about five millimètres deep, lying in the tissue of the iris on the one side, while on the other side it was bounded by the ciliary body, sclera, conjunctiva, and cornea. He thinks there had been a division in the iris-tissue arising from a wound at the corneo-scleral junction, which, after the consequent collapse of the anterior and posterior chambers, and the soldering of the anterior and posterior surfaces of the iris to the neighbouring tissues, had been, on the closure of the anterior wound, filled by the re-accumulation of the aqueous humour, and so formed the cyst. He considers that the case goes to support Von Wecker's theory as to the origin of such cysts.

Dr. Sattler had the opportunity of making microscopic examinations of three such cysts, and found that in all three the wall was composed of fibrous tissue, with a lining of large flat cells, consisting of several layers. In these cases, he believes he established the following facts:—1. The preceding of, and in itself, a trifling wound; 2. The presence of a cicatrix at the corneo-scleral boundary; 3. The commencement of the cystic formation long after the wound; and 4. The after-appearance of irritable conditions by the increase of the cyst, and the clothing of its inner surface by a variedly thick layer of flat cells. He thinks that the elements of these epithelial layers not only increase by division of the epithelial cells present, but receive additions from the cells in the stroma. In one case he found what he calls an anatomical peculiarity, capillaries in the wall of the cyst. Dr. Sattler is not fully satisfied with any already proposed theory of origin.

CASSELLS ON CASES WHICH SUGGEST SOME PROBLEMS IN OTOTOLOGY, AND QUESTIONS IN AURAL PATHOLOGY.—Dr. Cassells gives in the *Glasgow Medical Journal* for July, notes of seven cases on which he purposes making comments in a future communication. One case is somewhat remarkable. A young woman, aged twenty-five, suffering from purulent tympanitis, had removed from the left tympanic cavity what proved to be the whole cochlea in a necrosed state, and yet afterwards heard a watch one inch from the ear, and 'with apparently undiminished distinctness, the transmitted tones of the diapason, and all the tones as well as semitones, of the piano, the right ear during this latter experiment being closed effectively to the entrance of sound.' While under observation, she

THE annual congress of the Association of German Naturalists and Physicians has just been held in Breslau, in Silesia. It has been decided to hold the meeting in 1875 at Gratz, in Bohemia. The Association meets alternately in North and South Germany, the latter term including the Austrian dominions.

was subject to tinnitus, 'much giddiness,' frequent vomiting, and inability to keep the perpendicular position, the tendency to fall being towards the left side, but these symptoms were less marked when last seen.

W. LAIDLAW PURVES.

WECKER ON TRAUMATIC RUPTURE AND DISPLACEMENT OF THE INTERNAL RECTUS MUSCLE: ITS REPLACEMENT BY A DOUBLE SUTURE.—In the *Annales d'Oculistique* for May and June, 1874, Wecker reports an interesting case in which the internal rectus had been completely torn from its insertion to the eyeball, and had retracted so as to cause a divergent strabismus, and an annoying amount of diplopia.

The patient, a man aged forty-two, had fallen with his face upon the handle of some kind of beer-tap, and had received a contused wound at the inner angle of the eye, by which the internal rectus had been torn through. The consequences were a divergent squint of 3" or 4", and a distressing amount of crossed diplopia. Some time after the accident, and when the parts were soundly healed, M. Wecker replaced the detached muscle by sutures, and was fortunate enough to obtain a complete cure.

The scar in the conjunctiva was firm, and required very careful dissection from the eyeball; the muscle was exposed and brought forward, and then attached to its old insertion by two threads which were made to cross each other before they were tied, a method of securing them which M. Wecker strongly recommends as calculated to ensure thorough fixation with less strain upon the muscle itself. The result of the operation, which, though necessarily tedious and painful, was borne without chloroform, was the complete removal of the squint and cure of the diplopia.

BOWATER J. VERNON.

TOXICOLOGY.

RAYMOND ON POISONING BY OSMIC ACID.—All inquiries into the toxicological action of the rarer metals have a peculiar interest. The deleterious action of osmic acid has been known for a long time. M. Frémy was the first to call attention to the poisonous nature of the osmium compounds. M. Sainte-Claire Deville was himself seized with persistent nervous asthma in working with the acid. M. Debray suffered from some affection of the eyes caused by it; and lastly, M. Julien Clément found that it induced a cutaneous disease which was very difficult to cure.

The paper before us in *Le Progrès Médical* of June 27, 1874, gives a history of a case of supposed poisoning by osmic acid. A man aged thirty, being out of his usual employment (a band-box maker) engaged himself to work in the laboratory of M. Sainte-Claire Deville. Here he was occupied in the daily handling of pieces of osmium, platinum, and iridium. In the process to which they were subjected, an osmate of baryta was produced; this was treated with nitric acid, and the osmium precipitated with sulphide of ammonium. The man up to the time of beginning this work was perfectly healthy, and it is important to notice there was no history whatever of syphilis. After commencing this new employment he was very soon taken ill, the first symptom of which he complained being pains in the eyes. He slept heavily at night, and was much

troubled with nightmares. After a few days, an extensive eruption appeared on the surface of the forearm, on the face, and on both sides of the hands. Extreme indigestion, frequent diarrhoea, nine or ten times daily, and at each stool the passing a considerable quantity of black blood (the patient having no signs of piles) were prominent symptoms as the case progressed. Violent headaches, nausea without vomiting, shiverings, extreme dyspnoea, and a harassing cough rapidly followed. On admission at the hospital, the one prominent symptom was the extreme difficulty in breathing, amounting almost to threatening asphyxia. The temperature was 104° Fahr. On examination, the chest revealed the existence of a general bronchitis, and on the left side there was a somewhat extensive pneumonia. The skin of the hands and forearm were sprinkled with a papular eruption of a red and brownish colour, whilst the urine showed the existence of a large amount of albumen.

The case gradually became worse, and eight days after admission the man died. The temperature during the time he was in the hospital remained at 104° Fahr.; the pneumonia gradually increased in severity and extent; no diminution in the quantity of the albumen was apparent under treatment; and the weakness gradually became extreme.

At the *post mortem* examination the lungs showed a very manifest change, there being in both evidence of extensive pneumonia. In one lung there was 'a gangrenous cavern' in course of formation. On examination with the microscope, pus-globules were discovered in the pulmonary cells of both lungs. The kidneys showed the pathological appearances indicating extensive and acute Bright's disease. In the stomach there was a considerable amount of inflammatory action along the greater curvature. The other organs were healthy. On chemical examination, however, of the several viscera by M. Personne, no trace of the poison, the supposed cause of the illness and death, was discovered.

M. Raymond believes that it was an undoubted case of poisoning (chronic) by the action of an osmium compound; and he further promises to lay before the Société de Biologie, at which the original paper was read, the result of further experiments with osmium and its salts. We look forward with some interest to them. C. MEYMOTT TIDY, M.D.

HENSCHEL ON ACUTE ERGOT-POISONING.—Dr. Henschel reports a case in the *New York Medical Record* for September 1, 1874, where thirty minims of Squibb's fluid extract of ergot was given by mistake to an infant. Soon afterwards, there were severe abdominal pains, recurring every fifteen minutes and lasting hardly sixty seconds. There were slight tetanic contractions of muscles of face and extremities. Diarrhoea set in four hours after administration, and continued fourteen days. He believes that this case proves that it is the uterine contractions, and not the ergot, that destroys the fœtus during labour.

W. C. GRIGG, M.D.

REVIEWS.

On Poisoning by the Inhalation of Coal-Gas. By WILLIAM TAYLOR, M.D. Pp. 23. Edinburgh: Maclachlan and Stewart. London: R. Hardwicke, Piccadilly. 1874.

This interesting pamphlet has been reprinted from the *Edinburgh Medical Journal*, and contains the his-

tory of a Canadian, aged about fifty-five, who foolishly blew out the gas instead of turning it off, in his bedroom in one of the Edinburgh hotels. He was discovered quite comatose, but the efforts to revive him were so far successful that he lived for nearly two days. One special feature of the case was 'a steady, and almost incessant oscillation of the eyeballs.' The available cubic space of the room was 947 cubic feet; the proportion of gas could never have been more than about three per cent., or one in about 33½. Besides a very careful report of the symptoms in this case, there are notices of the Dundee and other cases, and an abstract of M. Tourdes' cases, referred to in the LONDON MEDICAL RECORD for August 5. There is no English translation of M. Tourdes' monogram, and therefore Dr. Taylor's work becomes additionally valuable. The Strasbourg gas appears to have contained 31 hydrogen, 22.5 of proto-carbonate of hydrogen, 6.0 of bicarbonate of hydrogen, 4.6 of carbonic acid, 14.0 of nitrogen, and 21.9 of carbonic oxide. Its mode of preparation was somewhat peculiar, especially in the large proportion of carbonic oxide, as Roscoe's analyses give about 7.8 as the percentage of 100 volumes of coal or cannel gas for illuminating purposes.

W. BATHURST WOODMAN, M.D.

MISCELLANY.

THE FLY-DIGESTING POWERS OF PINGUICULA AND DROSERA.—Mr. Andrew Murray writes to the *Gardener's Chronicle* that he has within the last few weeks made some observations at the Ochil Hills, Kinross-shire, on *Pinguicula* and *Drosera*, with reference to the fly-digesting powers which they are asserted to possess. He states that he found the leaves of the *Pinguicula* close, quite independently of the fact of a fly being in them or not. 'The leaves are found with their margins in all stages of curling over, some with no insect on them much more curled over than others with several.' The secretion which Dr. Hooker states to kill a captured insect he finds to be glutinous, and he believes that it does not fall on to the insect, but that death results from the secretion adhering to and closing up the spiracles by which the insect breathes. With regard to *Dionaea*, he suggests that it should be carefully noted (1) whether the secretion is never present until after an insect has been captured; (2) whether it is always present after one has.

RESPIRATION AND NUTRITION IN PLANTS.—Mr. Corenwinder has contributed to a recent meeting of the Société des Sciences, of Lille, an exhaustive series of observations on the processes of respiration and nutrition in plants. He supports M. Claude Bernard's view, that the process ordinarily known as the respiration of plants—the decomposition of the carbonic acid of the atmosphere—is really a process of digestion, and that simultaneously with this, plants carry on, by day as well as by night, a true process of respiration, similar in all respects to that performed by animals, consisting in an oxidation of the carbonaceous matters of their tissues. By a very careful series of analyses, performed mainly on the lilac and maple, M. Corenwinder determined that the proportion of nitrogenous matter in the leaves gradually and progressively diminishes from the time that they emerge from the bud till their fall; the proportion of carbonaceous matter increases very rapidly during April and May, and then remains nearly stationary till October; while that of incombustible substance increases during the whole period of vegetation. He distinguishes, therefore two periods in the vegetative season of the plant—the first period, when nitrogenous constituents predominate, is that during which respiration is the most active; the second, when the pro-

portion of carbonaceous substance is relatively larger, is the period when respiration is comparatively feeble, the carbonic acid evolved being again almost entirely taken up by the chlorophyll, decomposed, and the carbon fixed in the true process of digestion.

CREMATION.—At the Naturalists' Congress, lately held at Breslau, Dr. Reclam, of Leipzig, read a paper on 'Cremation,' on behalf of which he advanced many sanitary arguments. Dr. Reclam argued that the practice should be enforced in all cases of infectious disease as absolutely necessary to the public health. In ordinary cases he claimed only for every man the liberty of disposing of his remains after death as he might think fit. Then followed a minute description of a new burning apparatus, combining the highest efficiency with the greatest economy of outlay. A horse, for instance, could be thoroughly consumed in two hours with four shillings' worth of fuel. With the new system, the dead left upon the field of Gravelotte, men and horses together, might have been reduced to a harmless heap of white ashes in four days. In this case also, namely, after destructive battles, Dr. Reclam contended that cremation should be made obligatory. With liberty, however, as the general rule, he was persuaded that the reform will gradually work its way to universal acceptance. A trial was subsequently made of Dr. Reclam's new cremation apparatus, with the following result:—Half-an-hour after the corpse was placed in the furnace the soft parts of the body were thoroughly consumed, and in one hour the bones were reduced to a fine white ash.

DEMONIACAL POSSESSION.—An interesting work lately published by Dr. Legué of Paris, on the subject of the possessed nuns of Loudun, aptly illustrates the words uttered by Paracelsus, when, 300 years in advance of his time, he said, 'Yet before the world comes to an end, a great number of effects now supposed to be supernatural will be explained by strictly physical causes.' M. Legué shows, after studying and abstracting a number of curious documents relative to the unfortunate Ursulines of Loudun, that their confessions of demoniacal possession were simply due to peculiar forms of hysteria. The Abbess of Loudun, in particular, showed all the characteristics of the demonopathic epidemic, and whilst, according to her own account, under the sway of the devils Asmodeus and Balaam, showed the names of Mary and Joseph in bleeding letters on the back of the left hand. Another time she asserted that she was wounded at three points of the left side, whence demons issued from her body. This book contains fresh confirmation of that principle which maintains that pathology becomes changed with the flight of time. This principle, true in regard to all diseases, is especially so in relation to epidemic nervous disturbances, which borrow a portion of their characteristics from the state of contemporary manners and beliefs. A striking proof of this assertion may be found by comparing the story of the demoniac possession at Loudun with the last epidemic of the kind at Morzine, in which his Satanic Majesty is reported to have shown himself 'more reserved than he had ever previously been.' M. Legué's views are similar to those put forth by Hecker, in his work on the *Epidemics of the Middle Ages*.

THE Boston correspondent of the *Academy* records the death of Professor Jeffries Wyman, of Harvard College. He was born on August 11, 1814, and had consequently just completed his sixtieth year. He graduated at Harvard College in the year 1833; he then studied medicine in the Harvard College Medical School, and in Paris, carrying on his work in natural history at the Jardin des Plantes in that city. After his return to America he lived in Virginia, being Professor of Anatomy in the Hampton Sydney College of that State. In 1847 he accepted the post of Hersey Professor of Anatomy of Harvard College, and Professor of Comparative Anatomy in the Lawrence Scientific School, which positions he filled until his death, with great honour to the college and to himself. He was

also a member of the faculty of the Museum of Comparative Zoology. When George Peabody made his generous gift to the college for the establishment of the Museum of Ethnology, Professor Wyman was appointed Curator, and he had already made considerable collections for that Museum. He was a great worker, in spite of delicate health; but his reputation, except among those who kept up with his frequent and valuable contributions to scientific journals, was far behind his deserts. His articles may be found in the *American Journal of Science*, the *Smithsonian Contributions to Knowledge*, the *Boston Journal of Natural History*, and the *Proceedings of the Boston Society of Natural History*, of which society he was for many years president. He was the first to dissect the eyeless fish of the great cave in Kentucky; he discovered a parasite in the cerebellum of the snake-bird; he made several interesting discoveries about the aboriginal inhabitants of America; in short, he was unceasingly devoted to his studies. In Cambridge he had a certain number of pupils, who became deeply attached to him, but he was of too shrinking a disposition to have the large following that Agassiz had. His opinion on any scientific subject was of the utmost value, so careful was he not to make up his mind except after a thorough examination of every argument for and against. He has left behind him the deep impression of a man whose modesty and kindness were equal to his rare ability.

A SCIENTIFIC BEQUEST.—Lord Derby has announced in the *London Gazette* that the Italian Minister in London has communicated to him a copy of the will of the late M. Girolamo Ponti, of Milan, by which he has bequeathed a portion of his property to the 'Academies of Science of London, Paris, and Vienna.' It is understood that the relatives of the testator intend to dispute the will, and as it does not clearly appear what British society is indicated, the Secretary of State gives notice of the bequest, in order that those societies which may wish to put forward their claims, may take such steps in the matter as they shall think fit. The will, which is dated in January, 1856, contains the following passages. 'I dispose of the whole of what belongs to me on this day in favour of the three Academies of Sciences of London (capital of England), Paris (capital of France), and Vienna (capital of Austria), so that my said patrimony is to be divided among the said three academies in equal parts, for the purpose of founding with the produce thereof the institutions mentioned below, after deduction of the following charges: (600 lire for funeral expenses, and thirty lire yearly for masses, as well as all sums due from him, including his share of a provision for his mother, then alive). At the time of making the will, he stated his property, free of debts and charges, to amount to 865,000 Austrian lire (about 34,600*l.*) Each of the three academies above-named shall be bound to invest in a perfectly safe and profitable manner the third part of my patrimony which falls to its share, and with the proceeds to institute two annual competitions for ever, in equal amounts, so that together they may correspond to the total sum of the proceeds of the respective quotas, free from any expenses which may happen to be necessary for the institution of the said competitions. Consequently, each of the aforesaid academies will have to appoint a committee fit to decide upon the grant of the rewards annexed to the two competitions, which are to embrace the following branches:—1. Mechanics. 2. Agriculture. 3. Physics and Chemistry. 4. Travels by sea or by land. 5. Literature. The object of the committee must be to give the preference to whomsoever among the competitors that shall have advanced the sciences by the discovery of new and simple appliances, and this refers to mechanics, physics, chemistry, and agriculture; in regard to travels by sea and by land, whoever has distinguished himself by a long journey by land and by sea, or has been able to make propositions fitting to diminish the dangers inherent in the present systems, should have the preference; in default of inventors and distinguished travellers, the committee will turn its attention to the most distinguished publications of

original works, or at least of translations from other languages of works, upon the above-mentioned sciences and travels, including literature, that is, mechanics, agriculture, physics, chemistry, travels by land and by sea, and literature. Moreover, the decisions of the committee must be considered as final. The competitions, as I have said, are to be two in every year, and they are to begin one year after each of the above-mentioned academies shall have received its own third part according to the present disposition. Only natives of the country are to be admitted to the said competitions; therefore, only native English by the Academy of London, French by that of Paris, and Austrian Germans by that of Vienna. His personal effects, furniture, and books, he leaves to the Academy of Vienna, in order that as regards the effects and furniture, the proceeds of their sale may be added to the third part of his patrimony which falls to its share; and as to the books, that they may be added to its own library, or any other in Vienna which shall be chosen by it for public use.' In a subsequent addition, he says that 'in the above-mentioned dispositions all the increments are to be included which may have accrued from the fund of the property above-mentioned. Any other acquisition, whether from maternal inheritance or otherwise, and the proceeds thereof, shall be considered as disposed of as I now dispose of them, in favour of the Grand Hospital of Vienna, in order that they may be profitably employed, and in the most secure manner possible, in augmentation of its present endowment.'

WE have received from Messrs. Dunn & Hewett a sample of their new cocoa powder, unmixed with farina and sugar. Upon examination we find it to be a clear-flavoured perfectly pure cocoa of good quality, and prepared without any admixture. It has been introduced by the firm in question to meet the taste which has arisen for thin-drinking cocoas, and possesses the advantage of being of exceedingly moderate price.

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The London Medical Record.

WEDNESDAY, OCTOBER 7, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

A CASE OF LIGATURE OF THE COMMON ILIAC ARTERY: WITH REMARKS. BY DR. A. M. BARBOSA, OF LISBON.*

Ligature of the common iliac artery is one of the most formidable and difficult operations in surgery, and one of the most rare. In Lisbon, before I performed it in February 1873, it had been practised once only, twenty-eight years previously, by Professor J. P. Barral. My case, regarded especially from a clinical and anatomic-pathological point of view, was accompanied by circumstances of so great importance, that I have thought it right to give a history of it in this essay, which I had the honour of presenting to the first class of the Royal Academy of Sciences in Lisbon.

The paper is divided into six parts, viz.:

1. The history of ligature of the common iliac artery.
2. The condition of the patient before the operation.
3. The operative process employed, and the anatomy of the parts concerned.
4. The progress of the patient after the operation.
5. The necropsy.
6. Considerations arising out of the case and its results.

1. *History of Ligature of the Common Iliac Artery.*—The common iliac artery was tied for the first time in 1812 by Dr. William Gibson, of Philadelphia, to arrest hæmorrhage produced by a gunshot wound. The patient died thirteen days afterwards, from peritonitis and secondary hæmorrhage. Fifteen years later, ligature of the common iliac artery was performed by Mott, in a case of aneurism of the external iliac. In this case, the epigastric artery was wounded; but this did not interfere with success, as, in less than two months, the patient was completely cured, the ligature having been removed on the nineteenth day. This was the first time that the common iliac artery was tied for the cure of aneurism. Since that time, the operation has been performed more than forty times.

[Dr. Barbosa here gives an analysis of the thirty-two cases collected by Dr. Stephen Smith, of New York, in 1860, and referred to by Dr. Gross in his *System of Surgery* (1866), by Mr. Erichsen in his *Science and Art of Surgery* (1872), and by Dr. Le Fort in Malgaigne's *Manuel de Médecine Opératoire*, 8th ed. He refers also to nine others, mentioned by

Dr. Gross and Mr. Erichsen, making up the number to forty-one.]

Of these forty-one cases, thirty were fatal, and eleven ended in recovery. To these forty-one operations, I have to add four performed by Portuguese surgeons: one by Professor João Pedro Barral, of Lisbon, in 1845; one by Professor Antonio Bernardino de Almeida, of Oporto, in 1867; one by Dr. Antonio da Luz Pitta, of Madeira, in 1868; and one by myself in 1873.

My honoured master and friend, J. P. Barral, professor in the Medico-Chirurgical school of Lisbon, performed the operation in the St. Miguel ward in the hospital of St. José, in 1845, on a man aged about fifty-five, on account of an aneurism of the left femoral artery which was supposed during life to implicate also the external iliac. The operation was commenced, and should have been completed, by the surgeon of the ward, Dr. J. F. de Sousa Gomes; but, being prevented from continuing, he asked Dr. Barral, who was present as a spectator, to finish it. The peritoneum was wounded; and, in consequence of an unusual relation of the ureter to the common iliac, it was included in the ligature. The patient died the next day. My colleague, Dr. A. B. Ribeiro Vianna, who was present at the operation and gave me this history, possesses the pathological specimen, and has been good enough to entrust it to my care. It will be seen that the aneurism, although during the patient's life it appeared to be situated in the external iliac artery, was altogether femoral, occupying the portion between the origin of the epigastric and circumflex arteries, which must have been permeable, and the division of the common femoral artery into superficial and deep. The whole of the external iliac artery, nearly an inch and a half long, was intact, and might have been tied nearly an inch from the internal iliac. The aneurismal sac, which is now about as large as a moderate-sized lemon, extended three centimètres (nearly half an inch) upwards over the external iliac, and two and a half centimètres downwards on the superficial femoral artery. The ureter was included in the ligature with the common iliac artery, which was tied just above its division.

Ligature of the vessel was performed by Dr. A. B. de Almeida on May 6, 1867, in the hospital of St. Antonio, in Oporto, in the case of a woman, aged sixty, who had an aneurism of the gluteal artery. The ligature came away on June 2, twenty-six days after the operation, and the aneurismal tumour was reduced to a very small size. The patient, however, who at the termination of the session had been removed from the clinical to the general ward, died on July 16, seventy days after the operation, with symptoms of purulent infection, according to the information which the operator has been kind enough to communicate to me.*

The late Dr. A. da Luz Pitta, director of the medico-chirurgical school in Madeira, performed ligature of the left common iliac artery, in the hospital of Santa Isabel, at Funchal, on January 16, 1868, in a case of aneurism of the upper third of the femoral and lower half of the external iliac in a man aged thirty-nine. The process employed by Dr.

* Memoria sobre a laqueação da arteria iliaca primitiva, a proposito d'esta operação praticado em 7 de Fevereiro de 1873 no hospital de S. José de Lisboa, e apresentada á Academia Real das Sciencias de Lisboa por Antonio Maria Barbosa. *Gazeta Medica de Lisboa*, nos. 12, 13, 14, 15, 16, and 17, 1874.

* A thesis on this case was presented to the medico-chirurgical school of Oporto by Senhor João Pereira de Albuquerque, now my colleague; it is deposited in the library of that school. The *Escholaste Medico* of November 15, 1867, alludes to the same case in a letter from the late army surgeon, A. Gomes do Valle.

Pitta was nearly the same as that adopted by Astley Cooper in his celebrated case of ligature of the aorta, in 1817, for aneurism of the external iliac; and by Garvizo for the ligature of the common iliac in two cases, one of which was successful. The operator made on the left side of the linea alba, at the distance of about 0·3 inch, an incision about 1½ inches long, commencing half an inch above the umbilicus, and carried in a nearly straight direction downwards and outwards. The tissues were divided down to the peritoneum, which was largely opened; the surgeon then introduced his hand into the abdominal cavity, thrust aside the intestines, which partly escaped through the lips of the wound, divided the peritoneum again posteriorly, isolated the artery, and tied it. The patient died of peritonitis thirty hours after the operation. The necropsy revealed the signs of intense general peritonitis, and showed that the aneurism extended from the upper third of the femoral to nearly an inch below the bifurcation of the common iliac, which was tied not more than one-third of an inch from its origin.

The other operation practised in this country was one which I performed on February 7, 1873, on a man sixty-two years old, who had an aneurism arising from the left femoral artery, and extending over the external iliac in such a way as to lead to the supposition during life that this vessel was also extensively implicated in the aneurismal dilatation. The patient died of septicæmia on the 14th, seven days after the operation.

The number of known cases of ligature of the common iliac artery thus amounts to forty-five. Of these, thirty-three were fatal and twelve successful. The case of Dr. Almeida must be placed among the latter, although the patient died seventy days after the operation; for the ligature had been detached, the aneurismal swelling was much reduced, and the patient could but die in the hospital of St. Antonio, the unhealthy conditions of which no one who has not seen it can imagine to be as great as they really are. In eleven cases, the peritoneum was wounded, and death followed in ten. The operation was performed in thirteen cases to restrain hæmorrhage, and was successful in one. In most of the cases—twenty-five—the operation was performed for the cure of aneurism—of the external iliac and femoral in twenty-three cases, and of the gluteal in two: nine of these cases were successful, and sixteen fatal.

2. *Condition of the patient before the operation.*—Theodoro Luiz dos Santos, aged sixty-two, married, a carpenter, residing in Lisbon, was admitted into the Santo Antonio ward of the hospital of S. José on January 17, 1873, with an extensive tumour occupying the left inguinal region, and extending as high as the upper part of the internal iliac fossa of that side. It had first appeared about ten weeks previously. The patient had always enjoyed good health; he had never had rheumatism, nor had he been addicted to the use of alcoholic liquors. He had been, however, for many years subject to an obstinate cough, which was relieved by the use of cigars. During a very severe attack of cough in the beginning of November, 1872, he suddenly perceived a slight painful sensation in the middle of the left crural arch. He still walked about and followed his trade as a carpenter. On placing his hand on the part where the sensation referred to was felt, he found that it was more raised than the corresponding part on the other side; and that there was unusual and very distinct pulsation. He continued at his ordinary work without any

treatment until, eighteen days later, when he was assisting to raise some rather heavy masses of wood, he felt severe pain in the left groin, the part increased in bulk, and the pulsations became continuous and more intense.

For two days after this aggravation of the symptoms he was in much greater distress; he could not walk, and there was swelling of the foot and lower part of the leg. He remained confined to his room at home, and for about two months treated himself by means of fomentations and poultices. He gradually, however, became worse; the pain in the groin became much more severe, and extended upwards to the iliac fossa and downwards to the knee. The whole limb became swollen, especially after standing erect and walking.

In this condition he was seen by my colleague, Senhor J. Q. de Avillar, who recognised the existence of an aneurism, apparently of the external iliac, and advised him to enter the S. José Hospital. When I saw him on January 18, his condition was as follows.

The patient lay on his back, with the trunk raised, forming a very obtuse angle with the thighs. Any other position, he said, produced cough, and pain in the region of the swelling. He was of lymphatic temperament, with an aspect indicating debility and great suffering. His skin was pale; the abdomen was large, from a great quantity of subcutaneous fat. The whole left lower limb was hard and cedematous. The swelling of the thigh extended to the upper part of the iliac fossa, effacing the fold of the groin. On palpation a large tumour was felt, occupying the whole iliac fossa, and reaching as far as the upper and inner part of the thigh, where it became confounded with the cedema, which prevented its limits from being distinctly ascertained. From the crural arch to the upper limit, it measured eighteen centimètres (two and three-quarter inches). Its volume was nearly equal throughout, as far as could be ascertained by palpation through the thick abdominal walls and the cedematous integuments. It appeared, however, to be largest just above the crural arch, where its transverse extent was nine centimètres. The swelling was pulsatile in a great part of its extent. The maximum intensity of pulsation was at and above the crural arch, over an area of six centimètres (nearly an inch) in diameter. From this point, towards the limits of the tumour, the pulsation became weaker. In the part where the pulsation was most distinct, an expansive movement coinciding with the arterial diastole was distinctly perceptible, that is, at the middle of Poupart's ligament; it ceased to be perceived six centimètres above and below this part. At the same points where these signs were obvious on palpation, the stethoscope detected a rough intermittent bruit, synchronous with the pulse, and most intense, like the pulsation and expansive movement, at the middle of the crural arch. The tumour was elastic, without remarkable hardness or resistance, and but slightly tender on pressure; the patient, however, felt in the groin and in the neighbourhood a dull pain, which became aggravated at irregular intervals, and extended down the inner side of the thigh to the knee and sometimes to the foot. Nothing was perceived, on careful percussion and auscultation, in the heart and large vessels; there was no increase of size nor alteration of rhythm in the pulsations; neither was there the least abnormal murmur indicative of lesion of the heart or vessels. Auscultation over the lungs

and bronchi detected some rough and sibilant râles on both sides of the chest, the result of mild chronic bronchitis which the patient had had many years, and which accounted for the dry cough by which he was more or less troubled. The pulse was regular, weak and soft, 80. The temperature in the left axilla was 37.8° C. (100° F.) The remaining functions were performed regularly.

In the presence of those symptoms and signs, I diagnosed spontaneous aneurism of the lower part of the left external iliac artery, close above Poupart's ligament. I also believed that the aneurism, at first limited, had become converted, in consequence of the movements and the imprudent exertions of the patient, into a circumscribed false aneurism; and that this explained the characters of the tumour. Under these circumstances, no other treatment was indicated than that which would have the effect of interrupting the circulation in the aneurism, by ligation of the external iliac, if this vessel could be tied five or at least three centimètres from its origin, or of the common iliac above its division. Notwithstanding that it was not impossible that in these circumstances the external iliac might be tied, yet, considering the age of the patient and the manner in which the aneurism had formed and developed, I thought that in all probability I should have to tie the common iliac—which was indeed the case.

Until an operation should be determined on, I applied a compress over the groin and bandaged the whole limb; and prescribed some pills to allay the cough, and a tonic but not stimulating diet.

My colleagues in the school and hospital being consulted with regard to the proposed operation, agreed that it was the only means that could save the patient; at the same time, they recognised its difficulties and dangers, in view of the size and extent of the tumour and of the probably atheromatous state of the arteries.

Unforeseen circumstances interfered with my attendance at the hospital for some days. The operation was therefore deferred till February 7, on which day I performed it in the operating theatre of the medico-chirurgical school, in the presence of the pupils and of my colleagues, and of a large number of members of the profession in Lisbon.

(To be continued.)

LUNIER AND OTHERS ON THE PRESENCE OF FOREIGN BODIES IN THE DIGESTIVE PASSAGES.

At a recent meeting of the Société de Médecine of Paris, reported in the *Gazette des Hôpitaux* of Sept. 15, some curious records of cases of foreign bodies in the digestive passages were related.

M. Lunier cited the case of a young woman, a maniac, who had several times tried to commit suicide. On the first occasion she took a decoction of two or three packets of tobacco, which she had boiled for half an hour. Another time she swallowed two quarters of a hundred of pins, and buried another quarter of a hundred in her scalp. Finally she procured two hectogrammes (nearly half a pound) of gunpowder, set fire to it, and placed herself over it. However, none of these attempts resulted in anything but making her ill. She passed a great number of pins *per anum*, and it was only at the end of two or three months those in the scalp were discovered, and thirty of them removed. At the end of

three months she was completely cured. This fact tends to confirm the relative immunity from suffering which is peculiar to the insane.

M. Péter related that whilst he was house-surgeon at the Hôpital de la Charité, a young man came under his care suffering from an abscess in the right groin. The abscess was peculiar in appearance, its edges were horny, and the pus which issued from it was foetid and contained faecal matter. M. Giraldès introduced a sound into the abscess, and at the bottom of it felt a hard body which emitted a metallic sound. It was then clear that the abscess was caused by the presence of a foreign body, of which the extraction was difficult in consequence of the indurated faecal matter which enclosed it. This foreign body was found to be a pin which had perforated the cæcum, and had been stopped in further migration by the head. Peritonitis came on, and the patient died.

In consequence of this incident, M. Péter wrote a work on the migration of foreign bodies in the digestive passages, for which he collected a certain number of cases. Some of them are as follows.

A juggler having swallowed a sabre, was brought into the Charité Hospital. Serious consequences followed. Adhesive inflammation ensued, resulting in an abscess. The sabre became divided into two parts; and the extraction was performed in two operations.

A sailor, for half a pint of brandy, swallowed a knife, which he afterwards passed easily. But one day the knife would not pass, serious accidents came on, and caused his death in three days. The necropsy revealed chronic ulcerous gastritis. The knife was found, but the horn handle had been completely digested, and there only remained vestiges of the five or six blades it had contained.

Another case was that of an hysterical woman, who had swallowed a packet of needles, of which 396 issued from her breasts, arms, chest, etc.

M. Réliquet related a case of strangulated hernia, operated on by M. Maisonneuve, in which it was ascertained during the operation that all the effects of strangulation had been brought on by the presence of a lark's claw, which had been swallowed by the patient and had lodged across the intestine.

M. Forget drew attention to the preparations presented by M. Gallard's house-surgeon, from the body of a waiter, who, having entered the hospital on one occasion in consequence of having received some blows on the chest, which brought on some general symptoms; left cured. Soon after, however, he again came into the hospital for an abdominal affection, to which he succumbed. At the necropsy, old adhesions between the pericardium and the corresponding wall of the lung were found. These two organs were held together by a pin, of which the point issued into the interior of the pericardium, where it was perfectly free. It but rarely touched the heart, on the surface of which was found a series of concentric curves produced by the point of the pin, which inscribed the heart's movements on itself, just as the stilet of a sphygmograph would have done. This case, besides being very interesting from a physiological point of view, proves that the swallowing of a single pin will sometimes cause death.

M. Durozier said that coins seemed to find easy passage through the digestive tube. Thus, a man, who came into the Hôtel-Dieu, after having swallowed six twenty-franc pieces, passed them all, and recovered without any bad symptoms.

BOURNEVILLE ON THE THERAPEUTIC AND PHYSIOLOGICAL PROPERTIES OF BROMIDE OF CAMPHOR.

Bromide of camphor, or, to use the nomenclature of MM. Maisch and W. A. Hammond, monobromide of camphor (*camphre monobromé* of M. Wurtz) is a substance in which an equivalent of the hydrogen of camphor is replaced by an equivalent of bromine. This new combination is thus very rich in bromine, since it contains of this element more than a third of its whole weight. It is a perfectly definite substance, and, when well prepared and pure, it is white, of velvety appearance, and crystallises in elongated prisms, which are sometimes of a good size. These prismatic needles are often united at their bases, and thus form thick tufts of great beauty. The odour of the bromide of camphor is rather penetrating, and resembles that of camphor and mouldy wood in conjunction.

The first researches on the physiological action of bromide of camphor were made by Dr. Bourneville, and were communicated by him to the Société de Biologie on June 13. This investigator experimented on guinea-pigs, rabbits, and cats. The results of his experiments induced him to assign the following physiological properties to this new drug. Bromide of camphor lessens the number of the pulsations of the heart, and determines a contraction of the auricular vessels in guinea-pigs and cats; it diminishes the number of inspirations, and lowers the temperature in a regular manner. When the bromine is given in a poisonous dose, this diminution of temperature becomes more and more marked, until death ensues. In the cases which recover, the diminution of temperature is succeeded by an increase, which continues until the initial figure is reached. The rise of the temperature, however, occupies longer time than its fall. Bromide of camphor has inconceivable hypnotic properties, and appears to act chiefly on the cerebral system. The nervous system appears not to accommodate itself to the influence of this drug, since a prolonged use of it, in the case of cats and guinea-pigs, caused emaciation.

Starting from these physiological conclusions, the results of his experiments, M. Bourneville deduces from them the therapeutic properties of bromide of camphor. He considers that the use of this agent is indicated whenever it is necessary to produce decided calming of the circulation, and especially for the cerebro-spinal nervous system. The antispasmodic properties of bromide of camphor are, in M. Bourneville's opinion, clearly proved. M. Deneffe, of Ghent, is, we believe, the first person who employed bromide of camphor as a therapeutic agent. He found it of great service in the case of a man aged thirty, who was suffering from delirium tremens, accompanied by tremblings, excitability, insomnia, and visual delusions. The patient improved rapidly, and a thorough recovery followed, unattended by relapse.

Dr. W. A. Hammond, of New York, employed bromide of camphor prepared by M. Maisch, Professor at the College of Pharmacy in Philadelphia, in the form of beautiful free crystals slightly tinted with yellow. Dr. Hammond mentions instances where the convulsions of children; attacks of inveterate hysteria, lasting from five to twelve days, and headache, consequent on mental excitement or excessive study, were cured by the use of this drug.

Dr. Bourneville made his therapeutical experiment

at the Salpêtrière, under the direction of M. Charcot. The form of the drug administered was the same as that which has been employed up to the present time in all the hospitals of Paris—Dr. Clin's bromide of camphor dragées. In addition to the physical properties of bromide of camphor already mentioned, its characteristic odour and disagreeable flavour, it may be noted that it is insoluble in water, and changes when exposed to the air, so that the dragées are the best form in which to administer it. Each dragée contains exactly ten centigrammes ($1\frac{1}{2}$ grain) of the bromide of camphor, covered by a thin coat of sugar, which preserves the drug, masks both its odour and flavour, and renders it easy of deglutition. These dragées become rapidly disintegrated in the stomach. Among the cases already published we find the following.

In one case, a woman aged sixty-two, suffering from heart-disease attended by insomnia, twenty centigrammes only (two dragées) were efficacious. In the case of a woman aged forty-six, who was suffering from progressive locomotor ataxy, in whom insomnia alternated with disturbed sleep troubled by nightmares, it was necessary in order to obtain a decided improvement to administer eighty centigrammes (eight dragées). A woman aged forty-six, who for six years suffered from chorea, who had not been able to walk for a year, and was tormented by such incessant and violent movements that they drew her out of her bed, and who was also unable to sleep, had administered to her as high a quantity as 120 centigrammes (twelve dragées). Her sleep became calmer, she remained quietly in her bed, could walk a little, and often remained fifteen or twenty minutes undisturbed by choreic movements.

Three women under the care of M. Charcot, of the respective ages of fifty, sixty, and sixty-seven, were attacked by paralysis agitans, and pronounced incurable. They took from twenty centigrammes to one gramme (three to fifteen grains) of the bromide of camphor, daily, in quantities varying from one to ten dragées, in progressive doses. A marked amendment followed.

Bourneville (*Progrès Médical*) has submitted the efficacy of bromide of camphor to a severe test by choosing as a field for his experiments a hospital for incurables. If it succeeded in these obstinate cases, still greater was the probability that it would act beneficially where the conditions were more favourable, and the illnesses of more recent origin. A patient in the Hospital de la Pitié, twenty-four years of age, suffering from acute rheumatism, was attacked by chorea in the left arm. He was cured in five days. The dose was sixty centigrammes (nine grains) daily, given in six dragées.

In the same hospital, a woman, aged twenty-two, was attacked by violent hysterical chorea, with hysterical vomiting. The dose given was first forty, and then sixty centigrammes, daily. Her cure was rapid.

A young woman, a patient in the Necker Hospital, suffering from induration, with insufficiency of the mitral valve, showed symptoms of poisoning from the first day digitaline was administered to her. The digitaline was discontinued, and the bromide of camphor substituted. The heart-beats diminished in frequency and became regular. The medicine was relinquished, and the improvement obtained continued the same a fortnight later.

A man in the same hospital, presenting the same conditions, received equal relief.

A young woman, suffering from nocturnal incontinence of urine, had taken bromide of potassium during fifteen days without any amendment. Four dragées of the bromide of camphor cured this painful infirmity, at least for the time being. The patient is still under treatment.

A patient who was tormented by nervous cough, which entirely deprived her of sleep, took two dragées, night and morning, and the symptoms were abated in a few days.

At the Cochin Hospital a case of paralysis agitans was considerably calmed by a daily dose of four dragées. The patient was a woman, about forty years of age.

At the present time our knowledge of the physiological action of the bromide of camphor, and of its value as a therapeutic agent, is imperfect. It is, nevertheless, evident that the administration of this drug has been followed by incontestably beneficial results, which have been corroborated by observation in a number of the hospital wards. Bromide of camphor is a well-defined substance, having a characteristic crystallisation, smell and flavour; and a powerful sedative both to the nervous system and circulation, acting as a hypnotic and regulating innervation.

It would be premature to specify the precise dose which ought to be administered. In the generality of ordinary cases it has been given to adults in doses of from twenty centigrammes to one gramme, a dose two or three times during the morning, a dose before dinner or with it, and, finally, another before going to bed. The dose naturally varies according to the illness and the special symptoms presented.

E. LAWSON.

ANATOMY AND PHYSIOLOGY.

TILLMANN'S ON THE HISTOLOGY OF THE JOINTS. H. Tillmanns (*Archiv für microscopische Anatomie*, 1874, vol. x.) has investigated the synovial membranes and villi of the joints, and finds in opposition to Hüter (*Virchow's Archiv*, vol. xxxvi.) Böhm (*Inaug. Diss.*, 1868, Würzburg) and in unison with Schweigger-Seidel (*Ludwig's Arbeiten*, 1866) that in man, dog, rabbit, and pigs there exists on the inner surface of the synovial membrane a continuous epithelial layer, which can be isolated, by careful scraping with the knife, from its fibrillar base. The nuclei of the epithelial membrane lie sometimes grouped together, sometimes widely apart from each other. At many places, the epithelium consists of several layers. The individual cells of the epithelial membrane can be isolated, and this is best done by placing for several days the joints of freshly killed animals (dogs, rabbits) or those of man as fresh as possible in a solution containing one-third per cent. of bichromate of potash. Under the epithelial membrane lies a very rich capillary network. The assertion of Hüter, that the blood-vessels lie naked on the inner surface of the synovial membrane between the cellular elements, is thus shown to be incorrect. The epithelial layer of the synovial membrane is not formed quite like the epithelium of the other serous membranes. In consequence of the friction during the movements of the joint it is exposed to injuries, and is liable to a kind of inflammation. Several layers of epithelium are to be observed, of which the uppermost layer is often

slimy and fattily metamorphosed; here and there the epithelial membrane is wanting, so that holes are present in it. On account of the changing situation, and the above-described peculiarities of the inner layer of the synovial membrane, the author thinks that the method of treatment by silver, however valuable this method may be for other situations in the body, is unfavourable for investigating the structure of this membrane. The author criticises the results obtained by this method in relation to the inner synovial layer, and regards them as artificial products, as precipitates of the silver in the synovia.

The epithelial layer of the synovial membrane passes also to the intra-articular ligaments, *e.g.* the round ligaments, the ligamenta cruciata of the knee-joint, and covers them completely; whilst the inter-articular ligaments, *e.g.* of the knee-joint, are only covered on those places which are free from pressure, *i.e.* on the margins. The articular cartilage is devoid of epithelium, both in the adult and in the foetal condition of man and the mammalia. Tillmanns found, in opposition to Reichert, no complete epithelial covering of the cartilage. He could only find a more or less extensive extension of the epithelium on the cartilage, and this corresponded to the frequency of the excursion in the movement of the different joints.

On the inner surface of the tendon of the quadriceps muscle, the epithelial membrane was frequently found to be penetrated; sometimes the most beautiful epithelium was found, sometimes holes, and sometimes only isolated cells, which, partly with their thick hyaline capsule, gave the impression of cartilage-cells, and which were not to be distinguished from actual cartilage-cells. In one case, on the inner surface of the quadriceps, a peculiar flat epithelial-like cellular membrane, which could be raised up in folds from its base, was found. Downwards towards the patella this membrane passed into the ordinary epithelium, while upwards it shaded off into isolated cells, many of which could not be distinguished from cartilage-cells. Cellular structures were also found in the tissue of the tendon of the quadriceps, which partly were not to be distinguished from ordinary cartilage-cells, and partly resembled those 'elastic cell-plates' described by Boll in the tendon of the frog. (Compare Kölliker, Lehmann, Ponfick, Bruce, and V. Török.) These cells lay partly several together in the fibrillar tissue, and partly on the bundles of connective tissue. It is very probable that these cells have become changed from the endothelium.

The synovial villi of man, the dog, rabbit, and pig were also investigated. Tillmanns distinguishes true and false villi. The true synovial villi have always an epithelial covering, which can be isolated by continued shaking of it. The single epithelial cells were also here isolated, and show the same peculiarities as those of the synovial membrane. According to the nature of the ground-substance, several kinds of true villi can be distinguished; 1. Mucous villi, without a fibrillar basis; 2. Fibrillar villi; 3. Fat villi; and in the middle of numerous mucous villi a fibrillar basis capable of being isolated is to be found; 4. Muco-fibrous villi, which are surrounded by mucilaginous inter-fibrillar connective tissue. In the origin of 'daughter-villi' the proliferation of the epithelial membrane plays a very important part. At first, on the margins of the 'mother-villus' epithelial buds of different sizes appear, which gradually

increase to 'daughter-villi,' and derive their ground-substance more or less from the 'mother-villi.'

The false villi are derivatives of the hyaline cartilage, which splits up, even in quite sound joints, into fine villous threads; they are always devoid of vessels and without epithelium. Only those villi originating from the cartilage have partly vessels and partly epithelium, which split off at the boundaries of the epithelial covering and vascular loops, and raise the epithelium and vessels with them at the same time. These false villi occur very often. In and upon the fibrous ground-substances of the false villi cartilage-cells are always to be distinguished. By the action of a medium strong solution of permanganate of potash, changed four or five times daily, or of a ten per cent. solution of chloride of sodium, the hyaline ground-mass of the cartilage in freshly killed dogs and rabbits splits up into individual cartilage fibres. From this it is probable that the apparently homogeneous ground-substance of hyaline cartilage may be made up of single cartilage-fibres, which are glued and held together by some substance soluble in permanganate of potash. Between these cartilage fibres lie the cartilage-cells, which have no processes.

With reference to the mucin of the synovia, the author believes that the often-observed muco-fatty solution of the epithelium and the large quantity of mucus in the villi play an important part.

WILLIAM STIRLING, D.Sc., M.B.

GOBLEY ON CHEMICAL RESEARCHES ON THE BRAIN.—The conclusions at which M. Gobley arrives (*Journal de Pharmacie et de Chimie*, Sept.) are as follows.

1. The cerebral substance of man contains about eighty per cent. of water.

2. It contains two albuminoid matters; the one soluble in water, and not differing from albumen; the other insoluble, and for which he has proposed the name of *cephaline*.

3. The fatty matter of the brain is formed principally of cholesterine, of lecithine, and of cerebrine; and it contains, besides, traces of oleine and of margarine.

4. The brain contains the ordinary salts of the system, and extractive matters, some of which are soluble in water and in alcohol, others soluble in water and insoluble in alcohol.

5. During putrefaction, the cerebral pulp furnishes acid products, among which are found oleic, margaric, phosphoglyceric, and phosphoric acids.

6. The composition of the brain may be considered as represented, on an average, for 100 parts, by:—

| | |
|--|--------|
| Water | 80.00 |
| Albumen | 1.00 |
| Cephaline | 7.00 |
| Cholesterine | 1.00 |
| Cerebrine | 3.00 |
| Lecithine | 5.50 |
| Oleine and margarine | .. |
| Inosite, creatine, xanthine, etc. | .. |
| Aqueous and alcoholic extractive matters | 1.50 |
| Chlorides of potassium and of sodium, phosphates of potash, of lime, and of magnesia, etc. | 1.00 |
| | 100.00 |

ALEX. B. MACDOWALL.

STONE ON THE INFLUENCE OF WIND-INSTRUMENTS UPON THE LUNGS.—To the number of the *Philosophical Magazine* for August, Dr. Stone

contributes a short paper 'On Wind-Pressure in the Human Lungs during performance on Wind-Instruments.' It has been stated by several writers, and has hitherto been accepted as true, that the forced expiration employed in playing upon wind-instruments tended to produce emphysema of the lungs. As, however, such pressure had never been accurately measured, Dr. Stone has carefully investigated the subject. Two modes of experiment were employed.

1. On measuring by means of a water-gauge the extreme pressure which could be supported by the muscles of the lips both in trained musicians and in persons unaccustomed to the use of wind-instruments, the difference of variation was very great. It was found that when the lips were supported by a capped mouth-piece, similar to that employed in brass instruments, a greater length of the column of fluid in the gauge could be supported. The lip-muscles invariably gave way long before the expiratory power of the thoracic muscles was exhausted. It was found that the majority of untrained persons could not support more than four or five feet of water.

2. After a small gauge had been inserted into the mouth at one of its angles, various wind-instruments were tried, trained performers only being used for purposes of experiment, and the pressure exerted being only just efficient for the production of 'an average orchestral tone.' The greatest difference between the highest and lowest note was found in the clarinet, these requiring fifteen and eight inches of pressure respectively. It was noted that the force required was in general small, not exceeding or, indeed, attaining the pressure of a fit of sneezing or of coughing, and it was therefore concluded that wind-instruments are 'very unlikely to injure the lungs, or to produce the emphysema erroneously attributed to them.'

J. C. GALTON.

GALIPPE ON THE ACTION OF CANTHARIDES ON THE PUPILS.—*Le Progrès Médical* of July 13, 1874, states that M. Galippe has found dilatation of the pupils in all cases in which he has examined them, after the application of a blister.

MEDICINE.

MORTON ON TRANSFUSION OF BLOOD.—Dr. Thomas G. Morton, of Philadelphia, has published, in the *American Journal of the Medical Sciences*, July, 1874, a paper on 'Transfusion of Blood,' with a report of eight cases and a description of a convenient apparatus for performing the 'mediate method.' The paper commences with the pretty usual, and perhaps pardonable, flourish about the transcendent powers of transfusion—pardonable, because to achieve success in any direction is a legitimate ground for being somewhat enthusiastic about the means employed. Dr. Morton says, 'Transfusion of blood may be so readily performed, and with such entire safety, that it is somewhat surprising that this recognised life-saving operation has not been resorted to more frequently.' The details of three cases are given in full. The first was a case of lacerated wound of the face, occurring in a young man of hæmorrhagic diathesis. All the means used—including tying the common carotid—failed to arrest the bleeding, until at length he appeared to be in a comatose condition, and dying. On October 20,

1869, eleven ounces of defibrinated blood were transfused. A marked rigor followed the operation. In two hours the patient was semi-conscious. On October 21, the lips had a better colour, and the patient was perfectly rational, able to sit up, bleeding ceased. On the 26th he was walking about the ward, and was presented to the medical class. He continued to improve till November 3, when the internal jugular vein gave way, causing death on the 5th. The operation prolonged life over two weeks. The second case was one of carcinoma of the stomach, with leucocythæmia and great prostration. The patient, Mr. C. K., aged forty-five, was greatly blanched from mal-assimilation of food, and speedy death seemed inevitable. On November 12, 1870, about six ounces of defibrinated blood was injected into the median basilic vein of the left arm. No unpleasant symptom was observed, either in the respiration or circulation, during or after the operation. The gums and lips of the patient, which had had a blanched appearance, assumed a decided tint, which gradually deepened; the strength and spirits revived, and in all respects a great improvement was observed. Two months afterwards the health again rapidly failed, with constant sickness, and death occurred March 23, 1871. In this case (Dr. Morton says) transfusion gave temporarily a new lease of life. The third case was one of purpura hæmorrhagica, with nasal and alveolar hæmorrhage. Ida H., aged eleven, after a long previous illness, on February 7 and 8, 1874, was almost bloodless, and death seemed imminent. Transfusion being agreed to, the median cephalic vein in the left arm of the child was opened after much difficulty, on account of the small size and collapsed condition of the vessel. Two ounces of blood were injected. No unpleasant symptoms supervened. The pulse, which before was imperceptible, could now be counted. The patient began to take more food, was able to move about, and progressed favourably until March 29, when serious hæmorrhage came on from the falling out of a tooth. The next day, purpuric spots reappeared, and she became again very prostrate. Transfusion was at once performed. Six ounces of defibrinated blood were injected with immediate good effect. There having been a difficulty with the vein in the arm on the previous occasion, the saphena vein of the right leg, just above the ankle, was selected. On April 7 she was doing well, was up and about as usual, had excellent pulse, and no appearance of having lately suffered the loss of so much blood. On May 26 she was in perfect health.

Dr. Morton gives short notes of five other cases sent to him by Dr. J. G. Allen. Three of these cases were successful. One patient lived eighteen months after the operation, and then died from hæmorrhage after a miscarriage. Of one case Dr. Allen says: 'You will remember we accidentally' (Dr. Morton was present at this case) 'passed into the vein two or three little bubbles of air not larger than a pea—a kind of froth which had collected upon the blood in the syringe; this was followed by, and the probable cause of, the fit of gasping and threatened syncope which lasted about half a minute, and which at the time was attributed to want of air from many persons crowding over the bed.' This patient made a good recovery. In all the cases human blood was employed. The instrument used by Dr. Morton is simply a slight modification of an ordinary glass syringe—to hold about two ounces. In one of the cases, he speaks of filling the syringe several times. [Would it not be

better to use a larger syringe, like Dr. Braxton Hicks', to hold four to six ounces?—*Rep.*] The vessel for receiving the blood contains a chamber for warm water (on Higginson's principle) for keeping up its temperature, which is shown by a thermometer placed outside.

[Dr. Morton's is a good practical paper, and the cases well illustrate the advantages that may be expected in certain conditions from employing the 'mediate form of transfusion with defibrinated blood.' Of course there are many points in the paper open to discussion, but the facts are most valuable.—*Rep.*] H. M. MADGE, M.D.

VILLEMIN ON THE CAUSES AND NATURE OF SCURVY.—M. Villemin (*Bulletin de l'Académie de Médecine*, no. 32, 1874) has recently published a communication on scurvy, in which are contained some novel views as to the causes and nature of this affection. These views, like those of MM. Levin, Legroux, and Laboulbène, are based upon observations of the severe epidemic of scurvy which occurred in Paris during the military operations of 1870–71. M. Villemin has also brought to bear on this subject an extensive acquaintance with and the results of a careful comparative study of the many elaborate reports concerning previous epidemics of scurvy in different countries. He holds that most of the views held concerning the etiology and essence of the affection cannot stand the test of a strict critical examination, based on the study and comparison of various observed epidemics. He discusses the various supposed causes of scurvy, such as mental depression, abuse of tobacco, fatigue, cold, humidity, defective alimentation, saline agents, etc., and states that the affection is not determined by any of the numerous causes assigned to it in classical works on its etiology, and that the inductions drawn from one epidemic have been opposed by observation of another epidemic. Many facts, gathered from the published records of epidemics, both of land and sea scurvy, are given to show that a reduced supply, and even absolute deprivation, of fresh vegetables cannot alone give rise to scorbutic symptoms. M. Villemin next discusses and opposes the views of Dr. Garrod, who bases his opinion as to deficiency of potash-salts in food as a cause of scurvy, upon the propositions that potash exists in much diminished quantity in the food of scorbutic subjects, that antiscorbutic remedies contain a considerable proportion of potash, that the potash of the blood and urine is reduced in quantity or altogether absent, that the subjects of scurvy recover on the addition of potash to their food without the use of fresh vegetables and succulent fruits, and lastly, that the theory which attributes scurvy to a deficiency of potash explains satisfactorily most of the symptoms of the affection. According to Dr. Garrod's own tables, it is shown that potash does not exist in smaller quantities in the food consumed by scorbutic than that used by non-scorbutic persons. Antiscorbutic remedies contain, it is true, a large proportion of potash, but, as M. Villemin points out, these are always taken in very small quantities, and supply very little of this salt to the economy. One does not consume oranges and lemons as one consumes bread, meat, and legumes. Half an ounce of lime-juice does not contain more than half a grain of potash, which is a smaller quantity than is contained in one ounce of salted meat or dry peas. The deficiency of potash in the blood and

secretions is regarded by M. Villemin as an effect, and not as the cause, of scurvy. In any specimen of blood the quantity of potash is in direct proportion to the quantity of blood-corpuscles. Agglobulism is a very marked symptom of scurvy, and generally precedes every other manifestation of the affection. When an individual becomes anæmic through loss of blood, cachexia, or poisoning, there is the same relative diminution of potash as in scurvy, which bears the same relation to the diminution of globular elements. In answer to Dr. Garrod's statement that scorbutic patients are cured by the addition of potash to the food, without the help of fresh vegetables and succulent fruits, M. Villemin asserts that the success attributed to the use of potash, as to other methods of medication, is due to the fact that scurvy takes a natural and spontaneous course towards cure when the patient is placed under favourable conditions, and outside the medium in which the affection prevails. Scorbutic patients treated on the expectant plan recover just as soon as those treated by salts of potash or by succulent fruits. Dr. Garrod's theory does not, in M. Villemin's opinion, explain all the symptoms of scurvy. What is attributed to deficiency of potash is the effect of agglobulism. In other affections hæmorrhages are produced, which cannot be regarded as being due to a diminution of this alkali. M. Villemin holds that scurvy is always epidemic or endemic, and never sporadic. Cases of purpura, hæmophilia, and leucæmia, in which hæmorrhagic effusions constitute a common symptom, are often put down to scurvy. The scorbutic affection is a zymotic and contagious one, the primary focus of which is the septentrional regions of Europe. It follows the same laws as the recognised epidemic diseases; and the above-mentioned favourable influences, to which the majority of observers have attributed the power of creating it, are regarded by M. Villemin as accessory, secondary, and contingent circumstances, which by themselves are incapable of determining scorbutic symptoms. He thinks that he is able to demonstrate that it is impossible to concede to these conditions such an importance, and their only part is to assist and favour the activity of a special morbid agent. These conditions are debilitation of the organism by previous maladies and by defective alimentation, overcrowding, cold, humidity, and, in general, all that is comprised under the denomination of unfavourable hygienic influences. In conclusion, M. Villemin endeavours to show that there is a close pathological analogy between scurvy and typhus fever, and holds that these two ought to stand side by side in the family of miasmatic infecto-contagious diseases.

W. JOHNSON SMITH.

HIRTZ ON ACUTE PHLEGMONOUS PERIOSTITIS, WITH ULCERATIVE ENDOCARDITIS.—M. Hirtz, in the *Progrès Médicale*, p. 413, reports a case occurring in a girl eight years old. Up to five years previously she had never had any ailments, when she was suddenly seized with pain in the left thigh; an abscess formed which was opened and healed in a fortnight. Four days previously to her entry into the hospital the child was suddenly attacked with violent headache. She became delirious the same night, and continued so. At the same time the left thigh began to swell and be painful. On admission, the patient was very restless; she lay on her back with her eyes fixed, and had sudden attacks of terror. The chest-sounds were normal, the heart-beats very rapid. The left thigh was swollen and

painful to the touch. M. de Saint-Germain diagnosed phlegmonous periostitis. He thereupon made a deep incision, from which blood and a little pus escaped. The child sank on the fourth day after admission. The necropsy showed the periosteum thickened and separated for the whole of the lower third of the femur. The surface of the bone was rough, covered with osseous stalactites, and a thin layer of pus. A section displayed islets of osteomyelitis. The meninges of the brain were congested. In the left lung, at its base, was a small infarctus. The right side of the heart was sound. Just below the aortic valves were three small ash-grey ulcerations, surrounded by red zone.

W. C. GRIGG, M.D.

SURGERY.

ASHHURST ON LAPAROTOMY, OR ABDOMINAL SECTION, AS A REMEDY FOR INTUSSUSCEPTION.—Dr. John Ashhurst, junior, surgeon to the Episcopal Hospital, New York, has published an article on this subject in the *American Journal of Medical Sciences*, July, 1874. In the author's work on the *Principles and Practice of Surgery* (published in 1871), he expressed an unfavourable opinion of the operation of abdominal section in cases of intussusception or invagination of the bowels, though he regarded it as a perfectly legitimate procedure in cases of acute intestinal obstruction from other causes. The recent publication of Mr. Jonathan Hutchinson's successful operation for intussusception in a child two years old, has induced him to reconsider the whole subject and to look more carefully into its literature; and the result of this further research and reflection is that Dr. Ashhurst no longer considers the operation as 'never justifiable,' although he still holds to the opinion that it can only be properly resorted to in very exceptional cases.

In order that there may be no confusion in the terms used to describe differing operations upon the abdominal cavity, Dr. Ashhurst, following other recent authors, advises that the words gastrotomy and enterotomy should be held to mean only opening the stomach and small intestines respectively. Laparotomy (from *λαπάρα*, the soft part of the body below the ribs, and *τέμνω*, I cut) is used to signify an exploratory opening of the abdomen, which may or may not involve an incision into the bowel; when the latter occurs, laparo-enterotomy would be the correct designation of the operation. The author then goes into the history of the operation, which it is commonly said was first suggested by Praxagoras of Cos (one of the Asclepiadæ, who flourished about three and a half centuries B.C.); and this is probably true, but there is no evidence that the Greek surgeon ever performed laparotomy. The next reference to it appears to date no further back than the seventeenth century, when Paul Barbette, a surgeon of Amsterdam, after describing the symptoms and pointing out the hopeless nature of intussusception, asks 'Whether it would not be better, having made a dissection of the muscles and peritoneum, to take the intestine with the fingers and draw it out, than abandon the patient to certain death?' Dr. Ashhurst gives, more or less at length, the details of thirteen cases of invaginated bowel for which laparotomy, or laparo-enterotomy, was performed, commencing with the case of the Baroness L., related

by Bonetus, and ending with the case described by Mr. Hutchinson.

The deaths in these thirteen cases were eight. The number of cases he has collected the author thinks the largest ever published, and, though too small to be of much value for statistical purposes, sufficient to enable him to draw conclusions of some value as to what cases may hereafter be submitted to this mode of treatment with a reasonable hope of benefiting the patient.

In the first place the author says, no encouragement is afforded to repeat the operation in very young infants. The only cases in which it has been resorted to during the first year of life have all terminated fatally (three in number, the operators being Gerson, Spencer Wells, and Weinlechner). He then quotes from Pilz's 162 cases of intussusception, all occurring in childhood (to be found in Schmidt's *Fahrbücher*, vol. cxlvi. s. 178), to show that no fewer than ninety-one were infants under a year old, so that a large proportion of the cases must be at once put aside as unfitted for operative treatment. The fatality at this age is very great when no operation is performed, as proved by Leichtenstern's statistics, which show that the mortality is no less than eighty-six per cent.; but, as even at this early age a certain number do recover without operation, and all have died who had been operated on, the author is of opinion that surgical interference is not admissible. Dr. Ashhurst goes on to point out that in acute cases, those namely, in which in addition to symptoms of obstruction there are evidences of strangulation, such as peritonitis and intestinal hæmorrhage, a resort to an operation can be productive of no benefit. These cases are, on the other hand, as justly remarked by Mr. Hutchinson, precisely those in which there is most hope of recovery by sloughing of the invaginated portion. This point is well illustrated by Leichtenstern, who finds that, of 557 cases of which the termination is shown, sloughing occurred in 149, of which eighty-eight ended in recovery and sixty-one (forty-one per cent.) in death; while of 408 in which sloughing did not occur, only sixty-three terminated favourably and 345 (eighty-five per cent.) in death.

There remains, then, says the author, a limited number of cases, in adults or at least not in very young infants, in which the symptoms are those of obstruction merely, without intestinal hæmorrhage or peritonitis, and in which, when other measures fail, the question of operation may properly be considered; and should an operation be undertaken, he is of opinion that *abdominal section* should be chosen rather than either *enterotomy* or *colotomy*, as these could at best give but temporary relief, and have never proved of permanent value in any case of intussusception; whereas laparotomy, as seen by the cases related, has already proved successful in five instances.

To sum up, the following conclusions of Dr. Ashhurst may be thus stated.

1. Past experience gives no encouragement to operative interference in cases of intussusception occurring in infants less than one year old.

2. When the symptoms present, and particularly the existence of intestinal hæmorrhage, render it probable that the closeness of the intussusception will lead to sloughing of the invaginated portion, no operation can be of any service, and there may be a fair hope that the separation of the invaginated mass may lead to spontaneous recovery.

3. There may be, however, exceptional cases, in which, while there is no prospect of recovery through sloughing, bloodless remedies fail to give relief, and the patient is in danger of succumbing through exhaustion and long-continued suffering; under such circumstances, if the age and general condition of the patient do not forbid it, the question of operative interference may properly be considered.

4. When an operation is determined upon, laparotomy should invariably be preferred,

5. In cases of acute intestinal obstruction (from other causes than intussusception), should milder measures fail to give relief in the course of three or at most four days, laparotomy should be unhesitatingly recommended, and may under such circumstances be resorted to with a reasonable hope of success.

[It appears to the reporter that, as long as operations in cases of intestinal obstruction from any cause are postponed until it can be said 'Nothing more can be done,' so long will the fatality attending such operations be enormous. If anything can be done by the surgeon, in these almost hopeless cases, it can only be effected by an early interference, before gangrene and peritonitis have commenced. In most of the cases which have been cited by Dr. Ashhurst and others as weighing against operative interference, the operation was evidently undertaken only as a 'dernier ressort,' and the probability of success was exceedingly small indeed.—*Rep.*]

WM. ALLINGHAM.

DUPLAY ON HYPOSPADIAS.—In the *Journal de Thérapeutique* we find an interesting account of a communication made by Dr. S. Duplay to the sitting of the Société de Chirurgie, on January 28, 'on the treatment of scrotal and perineal hypospadias.' M. Duplay had treated three patients affected with this deformity. Their ages were four, four and a half, and twenty-one. In all, the penis was tightly tied down to the scrotum by a bridle, continuous with the borders of a gutter on the lower aspect of the glans, which is the rudiment of an urethra. The first step in the surgical treatment of the disease is to divide this bridle, and bring the penis up to the belly. The fibrous envelope of the penis is to be freely dissected from the skin of the scrotum, the organ raised and maintained against the abdomen during the whole time of cicatrisation, and for long afterwards. In the case of the young man of twenty-one, two months after the completion of this process sexual intercourse, which was previously impossible, could take place.

A new canal must then be created. This Dr. Duplay only tried on the two older patients; the child of four years having been withdrawn from his treatment. He insists on the necessity of effecting this by gradual processes; and especially on not attempting to unite the new canal to the orifice of the posterior part of the urethra for a considerable time. The meatus, however, may be formed at the same time that the penis is elevated. For this purpose, the borders of the groove are to be pared, and the tissues united over a sound which is left in. Then the new canal is to be formed by dissecting flaps from the under surface of the penis towards the median line, on each side, uniting them in the middle line (of course with their bleeding surface outwards), and then covering them with a flap of skin taken from the neighbouring part of the penis, and raised up sufficiently to glide over the

former. This process did not succeed at once in either patient. In the young man, three operations were needed; in the child, four. In fact, it seems doubtful whether it should be done in childhood, children being apt to tear the wound open. The union of the new canal with the old had only been attempted in the man, and then not with complete success. However, only a slight fistula was left, and when he passed urine without raising the penis, the greater part escaped by the new meatus. Whether the semen also passed by the meatus is not specified.

[The result certainly seems better than any which has as yet been obtained, and may encourage renewed attempts to cure this distressing malformation.—*Rep.*]

ROGER ON ASPIRATION IN THE TREATMENT OF STRANGULATED HERNIA.—In the *Gazette des Hôpitaux*, no. 98, Dr. A. Roger speaks of the practice of pneumatic aspiration in the treatment of strangulated hernia. His opinion is that surgeons have not, as yet, derived all the benefit from this procedure which it is capable of affording, in consequence of their having shrunk from reducing the hernia after having punctured the intestine and evacuated its contents. He proceeds to relate a case in which he was called in to a woman, aged forty-four, who had suffered for three days from strangulation of a femoral hernia. The hernia had been frequently the seat of somewhat similar symptoms, which had disappeared spontaneously. On this occasion, the patient, though she suffered from constipation, vomiting and colicky pains, was free from any more formidable symptoms. Reduction was tried twice ineffectually. The surgeon, not having the apparatus of Dieulafoy at hand, used a common subcutaneous injection syringe (Pravaz), which he plunged (under chloroform) into the tumour at the point where it seemed least resonant. The point of the instrument seemed free in a hollow space. Some clear watery fluid, with a faint odour, escaped. Of this, he withdrew forty charges of the syringe, equal, as he calculated, to thirty-eight grammes, and then succeeded in reducing the hernia. An injection of salt and water was ordered, and produced two motions. The bowels acted spontaneously next day, and the patient recovered without any bad symptoms.

Dr. Roger remarks on the peculiar character of the fluid evacuated in this case, and refers to a case under M. Richet's care in which similar liquid was extracted from a hernial sac. He believes that in his case it really came from the interior of the gut, since one or two bubbles of air were mixed with it. He calls attention also to the convenience of performing this operation with an instrument so common and so simple as Pravaz's syringe.

PROMPT ON SALIVARY FISTULA.—In a recent number of the *Gazette des Hôpitaux* (p. 814) is the account of a patient who was exhibited to the Académie de Médecine after the cure of a salivary fistula. He was a boy aged twelve, who fell in running down a staircase with a chamber-pot in his hand. His cheek was cut, and three fistulous openings formed—one corresponding to the situation of Stenon's duct, which showed no tendency to heal, the two others situated over the gland itself closed spontaneously. An artificial canal was formed through the cheek, by means of a trocar, and kept

dilated with tents and bougies. When this canal had been completely established, the wound was closed by twisted suture. The cure at the time of exhibition (more than three months after the accident) seemed complete. During the presence of the fistula, Dr. Prompt, his medical attendant, made several observations on the boy which led him to the following conclusions.

1. The discharge of parotid saliva depends on the excitation of the sense of taste, and is pretty nearly the same whatever be the form of that excitation, whether the person eats or drinks, or a sapid substance is applied to the tongue.

2. The quantity of the liquid secreted depends chiefly on the time during which the excitation of the sense of taste lasts; thus, if a glass of wine is swallowed at once, only a few drops will be secreted; if it be drunk in small mouthfuls, so as to spend three or four minutes over it, a considerable quantity, as much as two or three grammes, will be obtained.

GUILLAUMET ON RUPTURE OF THE GLUTEAL ARTERY.—A case of rupture of the gluteal artery, leading to what is termed 'a false consecutive aneurism' is related in *Le Progrès Médical*, as having been brought before the Société Anatomique on March 6, by M. Guillaumet. The patient, a criminal, aged twenty-five, was admitted into hospital on February 14, 1874, in a state of extreme general anæmia. He had extensive disease of the heart, and the arteries over the whole body pulsed very violently, but without any tumour or bruit. In the right buttock was a 'hard fluctuating' tumour ('tumeur dure et fluctuante') about two-thirds as large as the head of an adult. It seemed to be beneath the muscles; the skin was smooth, tense, and shining, the veins enlarged but not varicose. There was tenderness to the touch, the whole mass presented pulsation, and a strong souffle was audible over the whole of it. No cause was known for the disease. He had fallen about six feet, and struck his right buttock against a piece of furniture ten months before (April, 1873), but had not experienced any particular inconvenience. He was put into prison a short time afterwards. The tumour had made its appearance a month before (January, 1874), after an unusual exertion. The tumour had been punctured, about a fortnight before his admission into hospital, with a bistoury, causing a small wound, which was still visible. According to the man's account, a clear serous fluid had escaped from this wound. The wound had afterwards bled a good deal, though not to any really alarming extent, and the anæmia dated from that time. After his admission an exploratory puncture was made by M. Th. Anger (under whose care and that of M. Legroux the patient was), and this gave exit to pure blood. Accordingly the disease was diagnosed as aneurism, and it was decided to inject it with perchloride of iron. But secondary hæmorrhage came on from the wound, which it was impossible to repress, and the man died in a few days. *Post mortem* examination showed extensive disease of the heart, and a good deal of atheroma of the large arteries. On dissecting the buttock, the muscles were found infiltrated with blood, and below them was an enormous cavity filled with clot partly laminated, or 'active,' as the author calls it, on detaching which the ilium was found exposed and eroded. The gluteal artery was open, as if cut with a knife, just at the level of the posterior lip of the sciatic notch, the edges of the ruptured part being rounded

off, something like those of a glass tube which has been melted in a lamp flame. Traces of atheroma were seen on the edges of the ruptured part. The lower end of the ruptured artery could not be found.

M. Legroux observed on the difficulties of the diagnosis, which could only be cleared up by exploratory puncture, and then discussed the question of treatment. Compression, he says, was impracticable; the application of ice could not produce any particular result; the opening of the sac and direct ligature of the artery, as practised by J. Bell Carmichael and Warren Stone, was too dangerous. There remained the injection of perchloride of iron, which was decided on under the authority of Nélaton's case, but the examination of the tumour shows that this would have failed, and the only effective measure would have been the ligature of the internal iliac, an operation, however, which could hardly be thought of in the man's condition. [In fact, it seems clear enough that the disease was absolutely incurable. Ligature above the rupture would in all probability have failed to check the hæmorrhage,* and the direct ligature of both ends of the vessel was apparently impracticable. It is, however, the only trustworthy measure in these cases of ruptured artery, which are very different in practice from aneurisms, though unfortunately they have received that name.—*Rep.*]

Finally, M. Legroux speculates on the cause of the disease, believing that the artery, originally diseased, was injured by the fall, or possibly was ruptured at the time, and a small aneurism formed, which passed unperceived until either it or the contused artery gave way, at the time of the extra exertion, and the blood was poured out into the tissues of the buttock.

[It is worth the while of any one interested in this subject to peruse along with this case, Mr. Morratt Baker's above referred to, and Servier's, in the *Gazette Hebdomadaire* for 1868. The latter especially bears a great resemblance to the present case, and it is rather singular that it is not mentioned.—*Rep.*]

T. HOLMES.

SYPHILOGRAPHY.

JACKSON ON SYPHILITIC DISEASE WITHIN THE CRANIUM.—Dr. J. Hughlings Jackson has reprinted, from the July number of the *Journal of Mental Science*, 'Two Cases of Intercranial Syphilis.' [Lewes: G. P. Bacon, p. 12.] Much attention has lately been given to the rôle of syphilis in the production of grave lesions of the nervous system. Drs. Bristowe, Broadbent, Buzzard, Moxon, and Wilks, have all recorded cases, though, if we mistake not, Drs. Merryon and Ogle were among the first to specially direct English attention to this subject. On the continent, Gros and Lancereaux, Virchow and Wagner, with others too numerous to mention, have for some years past specially studied this question. So important indeed is it now considered, that Bäumlér tells us that it is to form a special division of Von Ziemssen's *Handbuch des Speciellen Pathologie und Therapie*. Numerous papers by Dr. Jackson in the *Medical Times and Gazette* ever since 1861, his 'Study of Convulsions' in the *Transactions of the St. Andrew's Medical*

Graduates' Association, vol. iii. p. 162, and the articles by him in the *London Hospital Reports* on diseases of the nervous system, show that he has made this subject one of special study. The conclusions drawn after so many years of observation deserve at least the most careful consideration, and a wider publicity than they are likely to gain in a pamphlet form. Dr. Jackson lays down two or three general principles, or canons of criticism, in such cases, which at first sight seem somewhat contradictory. The first is (p. 1 of the pamphlet), that 'a random association, or a random succession, of nervous symptoms is very strong warrant for the diagnosis of syphilitic disease of the nervous system.' Of course this syphilis may be inherited, or if acquired, may have been so quite irrespective of the patient's knowledge that he has so acquired it. The second canon is, that 'double optic neuritis with one-sided convulsions, do point, in most cases, to syphilitic disease of the cerebral convolutions, to coarse gummatous deposits; the neuritis alone, or the convulsions alone, not having the same value.' At first sight these propositions seem in slight contradiction, the lesions of the latter being seemingly quite definite. But reflection shows us that the association is random, and thus the first canon is unimpeached. The first case narrated was a soldier, aged thirty, who had had complete paralysis of both third nerves for five months. The patient denied having syphilis, but the testes were never examined, which Dr. Jackson thinks should always be done in doubtful cases. Convulsions followed, which were not seen by any medical observer; next (nine months after first attack), hemiplegia of the whole right side—face, arm, leg. His intellect became somewhat deranged; and three months after, he was attacked with hemiplegia of the left side, and died four days after, in a state of coma. Both pupils became small and equal before he died. There were two suspicious (yellow-white, wash-leather like) nodules in one testis, and several puckered cicatrices in the liver. Examination of the brain and its arteries showed gummatous deposits, involving the last quarter inch of the right vertebral artery, the basilar, for about one-fifth of an inch, the left vertebral artery and the rootlets of the ninth nerve (just a little before death he seemed unable to move his tongue); the left anterior cerebellar artery ran back parallel to the left vertebral, and was glued to it, as also to the sixth nerve. The anterior fifth of the basilar was here and there affected, whilst both posterior cerebral, and both superior cerebellar arteries and the two third nerves were all fixed to one another by material similar to that thickening the arteries. All the arteries at the base seem to have been more or less affected, whilst through the arachnoid, over the inner end of the right fissure of Sylvius, was seen a yellowish mass, the size of a horse-bean. The right middle cerebral artery was enlarged and nodose, and it and all its branches were welded together. The left middle cerebral was also thickened, and its principal branches a little nodose. Both these vessels, however, were pervious. Both anterior cerebral arteries were blocked. The floor of the fissure of Sylvius was imperfectly softened for about an inch from its commencement (right side?). On the inner and anterior part of the right corpus striatum there was depression, and below this, softening of the size of a hazel-nut. The left corpus striatum was softened in the lower and external

* See Mr. Morratt Baker's case in *St. Bartholomew's Hospital Reports*, vol. viii.

part, and the lower part of the thalamus was slightly softened.

The second case was that of a man aged forty-five, suffering from intense pain in the head, who had double optic neuritis and convulsions. He denied syphilis, but his only living child, a girl of twelve, who also had convulsions, had nebulous corneæ (? post-interstitial keratitis), and notched central upper incisors; her nose was also sunken. She died of typhoid fever, but no visceral lesions of syphilis were discoverable. The father recovered from one or two attacks of cranial pain, followed by more or less stupor, and convulsions under large doses of iodide of potassium. A year after his first attack he had palsy of the right face, and the left arm and leg were weak. The facial paralysis was unlike Bell's, more like hemiplegic. Six weeks after, the left third nerve was paralysed; he recovered to a great extent with fifteen-grain doses of iodide of potassium three times a day, after about two months, but on going out was soon attacked with right hemiplegia, with deviation of the head and eyes to the left. He got more and more comatose, a bed-sore formed, and the sphincters were affected. Death followed in about six weeks. Here also gummata and softening were found both in the brain and in its arteries. For the details reference must be made to the pamphlet. As regards treatment, Dr. Jackson admits that the effects of antisyphilitic remedies, such as iodide of potassium, which should be given in large doses, is often striking, but he is not very sanguine as to their having much share in the recovery from the nervous symptoms. Still, he thinks it right to treat syphilis whenever we find, or reasonably suspect it, but he says: 'If we keep an eye on our patients, we find them suffering again; we often "cure" them many times,' (*Med. Times and Gazette*, March 29, 1873).

His third canon is: 'A patient who has recovered from a syphilitic affection of the nervous system is very likely to suffer again—not necessarily from the same kind of symptoms, but more likely from a new style of symptoms.' Of this numerous cases reported by Dr. Jackson and others in the different journals, especially the *Lancet*, *Medical Times and Gazette*, and *British Medical Journal*, afford such numerous proofs that it seems sufficient to quote without comment. W. BATHURST WOODMAN, M.D.

DERMATOLOGY.

MALASSEZ ON THE FUNGUS OF ALOPECIA.—M. Malassez (*Revue des Sciences Médicales*, July 15, 1874) says that since 1843, when M. Gruby announced to the Academy of Sciences that he had discovered a parasitic fungus in the form of Tinea, called Porrigo decalvans, and that he considered this parasite (*Microsporion Audouini*) as the cause of the disease, micrographers and dermatologists have sought in vain for Gruby's fungus. Indeed the parasitic character of alopecia has always been a matter of doubt; some have denied the presence of the parasite in this disease; others, with a view to demonstrate its existence, have relied on the clinical development of the disease rather than on the verification of the actual presence of the parasite.

This parasite exists however, undoubtedly. M. Malassez has found it on the scale of epidermis obtained by scraping the patches of alopecia on the

skull. These scales, freed from grease, then washed in very pure absolute alcohol, and mounted in carbolic acid (1 in 100) showed unmistakable parasites made up of small spherical spores only. Three distinct types of these parasites can be made out. Those of the first type measure from 4 to 5 millimètres, have a double contour, and sometimes show buds with a simple contour; these are the large spores. Those of the second part measure from 2 to 2.5 millimètres, have not a double contour, but may have buds; these are the small spores. Those of the third kind are less than 2 millimètres in diameter, have a single outline, and no buds; these are the sporules.

There are not any tubes, only little chains of, at the utmost, five or six spores. The spores of the first two varieties (both large and small) sometimes take the form of a more or less open C; these are the dead, empty spores—skeletons of spores. The sporules never present this appearance. The large spores and the sporules are grouped irregularly on the patches of epidermis. The small spores most frequently take the form of small chains. Finally, agglomerations or patches of these spores are observed, especially round the hair-follicles, which they surround like a border. The isolated spores are young colonies; seed sown here and there for future development. The patches are probably old centres of propagation. The spores are very seldom seen on the hair. When they are found there it is always on the surface of the shaft; they do not ever directly adhere to the hair, but to the neighbouring epithelial cells. They thus form a more or less complete chain or ring round the hair, and undoubtedly take their rise from the cutaneous epidermis.

The hairs are sometimes discoloured, atrophied, and brittle; but their structure is not sensibly modified, neither is the epithelium destroyed. Microscopic preparations of the skin clearly show that this parasite only locates itself in the most superficial parts of the horny layer; it frequently insinuates itself between the layers of epidermic cells which they detach mechanically in the form of scurf.

At the level of the patches of porrigo, near the orifices of the hair-follicles, the favourite habitat of the parasitic ring, the epidermis becomes considerably thickened, sometimes attaining fifteen times its normal thickness; in fact, a true *pityriasis pilaris* is developed, which interferes mechanically with the nutrition of the hair, strangles its growth, and destroys it by enlarging the follicle and producing desquamation, whence arises porrigo decalvans.

E. LAWSON.

PSYCHOLOGY.

NEWINGTON ON HEMIPLEGIA IN RELATION TO INSANITY.—In the *Edinburgh Medical Journal*, of August, 1874, Dr. Hayes Newington considers the subject of 'Hemiplegia in relation to Insanity.' Hemiplegia, as it is met with in asylums, may be divided into two classes; the first containing those where the seizure may be regarded as accidental, the other embracing those where the attack is the cause, result, or complication of the psychical disorder.

1. Where each individual patient labours under some form or other of brain-disorder, hemiplegia may be expected to occur frequently. The com-

monest naked-eye pathological change in a lunatic's brain is atheroma of the vessels; and in the aorta, or on the semilunar valves, patches of deposit are found in the majority of cases. And yet rupture of vessels is not much more common in asylums than out of them, owing, probably, to the regular and restricted diet, sedentary habits, and a blunting of all the emotions which ordinarily disturb the vascular supply.

2. In the second class of cases there is an obvious relation between the psychical and the physical disease. Hemiplegia has given a name to a variety of mental disease. This has been called 'paralytic insanity,' and always assumes the type of dementia. It is not to be confounded with general paralysis of the insane. Of this insanity hemiplegia will not, usually, be the only cause. Predisposition, hereditary or acquired, is necessary, and alcohol is a very likely form of the latter.

Hemiplegia is more frequently found as a result of insanity. It is common to see a patient down on one side, limping along, with obliquity of the tongue and inequality of pupils. In the course of a few days we find him as free from motor troubles as any of his neighbours, and hear that he has had an epileptic or epileptiform seizure prior to the symptoms, or has been excited or noisy at night. The cases of this evanescent hemiplegia may be divided into two classes:

a. Cases where the paralysis is independent of a convulsion of any kind, but supervenes on an attack of excitement. Here, probably, the hemiplegia is due to minute extravasation of blood into the optic thalamus and corpus striatum. Symptoms so caused may rapidly pass away. An extravasation need not necessarily disintegrate brain-structure irremediably. If of small size, it may split up and separate without destroying the nerve-fibres, leaving a chance of their resuming their duties.

b. Cases where a convulsion precedes the paralysis. This class is composed of epileptics, general paralytics, and patients suffering from adventitious products in the brain.

As to these cases, Dr. Newington quotes Niemeyer's opinion, that by far the greater portion of injury done to the motor system is due to extravasation not of blood, but of serum; and nothing seems more probable than that such should be the fact, when, as in epilepsy, there is great and continued pressure exerted on diseased vessels, and when also no evidence of hæmorrhage or obstruction is found; while, on the other hand, dilatation of vessels and waterlogging of the brain-substance is a very common discovery. It is to this effusion, occurring partially, that he would attribute the evanescent hemiplegia in this class of cases.

G. FIELDING BLANDFORD, M.D.

EPIDEMIOLOGY.

VARIOLA PROPAGATED BY VACCINATION.—In the *Gazette Médicale de Strasbourg* of July last, there is an account of an epidemic which was propagated by vaccination. 'On May 3, 1872,' (says the article from which we quote), 'twenty-four infants at the breast were vaccinated from a child three months old. All became sick, more or less, towards the end of the first eight days, and some were unable to present themselves for examination on May 10. On

this day twenty-three other children were vaccinated from one of the first batch, in whom the vaccinia was normal (ayant une vaccine normale et exempte d'éruption quelconque). These last experienced the same febrile symptoms, and all the children, without exception, the two vaccinifers included, were seized from the eighth to the eleventh day of the vaccination with an eruption presenting the following characters.

'Reddish pale papules of the size of a pin's head were spread over the whole of the body, accompanied by fever; two days afterwards vesicles were formed filled with a whitish liquid, and their extension upon the mucous membrane of the nose and mouth rendered the voice indistinct (voilée) and deglutition difficult.

'Let us note, too, that everywhere the vaccinia had followed apparently its normal course, and that the pustules, without being very good, had their characteristic aspect. Twenty-six infants, more advanced in years, were re-vaccinated of these two vaccinifers, and many among them were seized some days afterwards by a fleeting rash of short duration, resembling urticaria.

'The exanthem of the infants was characterised by its results. It became the point of departure of a small-pox epidemic, which commenced among the mothers and the members of the families of the said children, and which was propagated with such rapidity, that from May 15 to June 19 there were seventy-five cases, not including the vaccinated children. On July 30 the epidemic was considered to have terminated, after having attacked 141 persons, which, with the forty-seven vaccinated, forms a total of 188 persons in a population of 3,000.

'The disease was severe; three of the cases being hæmorrhagic, of which two died; of the whole number, nine died, eight adults and an unvaccinated child.

'It is clear,' said one medical man, 'that these vaccinated children were under the simultaneous influence of the poisons of vaccinia and variola. This is a well known fact; but how is the explosion of the variola to be explained in these forty-eight children. One cannot admit that they were incubating variola at the time of their vaccination; that might happen in isolated cases, but not in two large groups. Moreover, the simultaneousness of the appearance of the exanthem, each time from the ninth to the eleventh day of the vaccination absolutely negatives this supposition and connects the variola with the vaccination.

'Direct official information and special inquiries showed that the child that served to vaccinate the first vaccinifer was free of all small-pox eruption; but at this period there was small-pox at Oedt, and a relative of the first vaccinifer was sick of it. On the eighth day of its vaccination, when it had served the first group of May 3, this infant had small-pox, but still in the incubation period; its blood was contaminated, and the variolous virus, it was urged, might have been produced in the vaccine pustule, as in syphilitic vaccination.'

The writer of this article rejects the notion that the variola might have owed its existence to contagion, inasmuch as if that notion were true the mothers as well as the children would have suffered; as also the notion that the variolous virus was inoculated along with vaccine virus. He maintains that the facts are most simply explained by admitting

that the first vaccinifer had undergone variolous inoculation. Quoting from an old treatise on the history and practice of inoculation (Dézoteux et Valentin; Paris, an. viii), he thus describes that process: 'First period: Eruption local. In the five or six first days which follow the insertion, the variolous virus exercises only a local action, and determines an eruption of pustules in the inoculated places, named local or primitive eruption. This local and primary eruption is a true small-pox, special to the inoculated part.'

'The second period, fever of invasion, commences ordinarily at the end of the seventh day, or in the eighth, dating from the moment of insertion. At the end of the third, or at the commencement of the fourth of this fever, that is to say the tenth or the eleventh of the inoculation, commences the third period, or that of the general eruption, more or less intense, often reduced to some pustules and of failing altogether.

'Let one compare this description with the vaccinations at Oedt, and one will see a complete identity; towards the eighth day all the vaccinated infants were sick more or less, and from the eighth to the eleventh day they had variolous eruption. It was then variola which was inoculated, but was vaccinia at the same time. There is no evidence for or against, for no one to-day can demonstrate directly the nature of the pustules of insertion of the first vaccinifer; one can only do so by a rigorous analysis of the consequences of their propagation, and that indicates nothing but small-pox.'

ALEX. COLLIE, M.D.

MISCELLANY.

CREMATION.—At Breslau, on September 22, a large number of members of the Association of German Naturalists and Physicians assembled to witness the burning of a human body. The body was that of an old woman who had died in the hospital. In half an hour after the body had been placed in the gas oven, the soft parts had almost entirely disappeared; and at the end of an hour, besides the heated bones, there was nothing left but the remains of the liver, which required another hour and ten minutes for complete combustion. The time of burning was prolonged, as the opening in the door for the purpose of observation allowed the entrance of air and consequent cooling of the chamber. The weight of the body was seventy and a quarter (German) pounds; the ashes of the bones weighed three pounds.

MEDICINE IN RUSSIA.—The *Golos* of St. Petersburg states that in Russia there is but one physician to every 17,800 souls. There are governments such as that of Perm, circles like that of Sherdink, where the proportion is still smaller, and there is scarcely one physician to 60,000 souls. There is, moreover, one hospital to every 175,000 inhabitants; one for women in labour to every 6,000,000, one for foundlings to every 1,350,000; one lunatic asylum to every 390,000, one deaf and dumb institution to every 11,000,000. The Russian journal says that the army is better provided for, there being one hospital to every 5,000 men. In Prussia the proportion is one to 1,250. In Italy there is one physician to every 2,280 inhabitants; in England there is one medical man (surgeons included) to every 3,180.

LEAD IN SODA-WATER.—The following is a further contribution to the literature of this rather interesting domestic subject by Mr. William Taylor of Edinburgh. In 1867 there was a patient admitted to ward 3, Royal Infirmary (medical), suffering from lead-poisoning. He

was employed in an aerated-water manufactory. Aerated water was the vehicle through which the lead had reached his system, and daily potations, *ad libitum*, the means which secured the necessary quantity. His favourite beverage, was, I think, lemonade, and several bottles of it were brought to the hospital for analysis. The presence of lead was detected in it. The patient knew that lead in any form was not introduced by his master as an ingredient in the lemonade. It must therefore have found its way thither as an adulterant amongst the chemicals used in the process of manufacture, or as the result of their action upon the lead pipes through which the manufactured article was conveyed. The patient was under the care of Dr. Warburton Begbie, who was then acting for Professor Laycock. The testing was carefully conducted by Dr. Crum Brown.

AN EGYPTIAN MEDICAL TREATISE.—Among the printed works submitted to the Oriental Congress was a remarkable *fac simile* exhibited before the Hamitic Section by the discoverer, Professor Ebers, of Leipzig. This is a complete book from beginning to end, and in respect to size is only surpassed by the great Harris Papyrus in the British Museum. The manuscript in question is a perfect handbook of Egyptian medical science; and, without pretending that the physicians of our time have much to learn from their embalmed predecessors of the Nile, this papyrus may yet afford them a rich source whence may be drawn the history of their science from its earliest dawn. A calendar on the back of the MS. informs us that it was written in the sixteenth century B.C. We know already that at this remote period Egypt stood in political and commercial relation with the neighbouring States of Western Asia; but the Ebers Papyrus teaches us further that there already existed an interchange of thought and knowledge. Not only a vast number of medicaments procured from Asia are alluded to, but we find also *recipes* borrowed from a celebrated physician of the town of Byblos, in Phœnicia. Other *recipes* are derived from older writings, as, for instance, *The Book of the Wisdom of Men*. The typographical reproduction is the work of the printers, Giesecke and Devrient. By a new process, the 110 pages of which the MS. consists are imitated with surprising fidelity. In about two months the whole work will appear, accompanied by a translation from the hand of the editor, Professor Ebers.

THE ASSOCIATION OF GERMAN NATURALISTS AND PHYSICIANS held its forty-seventh annual meeting in Breslau on the 18th of last month and following days. The proceedings were opened with an address by Dr. Löwig, Professor of Chemistry in the University, the greater part of which was occupied with a notice of the life and labours of the chemist Richter, a native of Silesia, whom Dr. Löwig described as the discoverer of chemical proportions and the founder of the higher scientific chemistry. Addresses of welcome were then delivered by Baron von Nordenflicht, President of the Province of Silesia; Herr von Forckenbeck, chief magistrate of Breslau, and Professor Heidenhain. Professor Virchow delivered a characteristic address on Miracles, with special reference to the case of Louise Lateau. For the transaction of the scientific business of the association no fewer than twenty-three sections were formed, viz: 1. Physics; 2 and 3. Mathematics, Astronomy, and Meteorology; 4. Chemistry and Pharmacy; 5. Agricultural Chemistry; 6. Geology; 7. Zoology and Comparative Anatomy; 8. Botany; 9. Anatomy and Physiology; 10. Medicine; 11. Surgery; 12. Military Hygiene; 13. Ophthalmology; 14. Otology; 15. Diseases of Children; 16. Gynaecology; 17. Psychological Medicine; 18. Public Health; 19. Balneology and Physical Therapeutics; 20. Anthropology and Pre-historic Archaeology; 21. Geography; 22. Agriculture; 23. Pathological Anatomy. Gratz, the capital of Bohemia, was chosen as the place of meeting in 1875. Invitations were also received from Homburg and Kissingen. The proceedings were enlivened

through the hospitable attention of the inhabitants of Breslau, with public dinners, a ball, and excursions to various places of interest.

AN EXCELLENT IDEA.—The *Gazette Hebdomadaire*, in the number published on the 25th ult., urges the necessity for establishing a system of medical stations for night service in Paris. Our contemporary enlarges upon the bad consequences which often arise from the difficulty of obtaining medical assistance in the night, and cites the case of a lady who died after a few hours' illness from a sudden attack attended by some symptoms of poisoning. Her husband, it appears, sought the services of four medical men who lived in his neighbourhood, but in vain; not one of them was at home. When a fifth was at last obtained, it was too late, and the patient died, when she might have been saved by prompt aid. The plan proposed by the *Gazette Hebdomadaire* is, that a night medical station should be established in every municipal district, and should be officered by medical men willing to undertake the duty, one or two of whom should be at the post every night. Every person who came to seek medical assistance should deposit ten francs with an official deputed to receive the same, or be required to make a declaration that he was unable to make such payment. The medical man on duty should then receive proper notice, go to the address given, and on his return would receive a cheque payable at the parochial treasury, so that there would be no question of fees between him and the invalid. In cases of poverty, when the case had been duly verified, the poor-law authorities would defray the medical fees, which in this instance would be reduced by one-half. It appears that these night stations for medical aid are established and in operation in the principal cities of Germany and in Russia. Their utility is both manifest and incontestable.

AN INVOLUNTARY TESTIMONY.—The *French Journal Officiel*, in giving an account of the French explorations in Burmah, goes into the following details respecting the fever peculiar to the woods in that country, which seems to have a strong resemblance to the European typhus fever. 'On July 7, Father Lecomte, French apostolic missionary and curé of Mandelej, received news from Captain Moreau that several members of the escort had been attacked by paludal fever, of which some had recovered. Just, however, as they were setting off again, a youth of eighteen had a worse attack, and died very quickly; his death was followed by that of the cook of the expedition, who was ill for six days, and by that of another youth, whose death was lingering. At the end of the month, nearly the whole of the members of the expedition, with the exception of Captain Moreau and a few others, were attacked. Captain Fau took to his bed for five or six days, with symptoms characteristic of the terrible disease called "fever of the woods" by the natives. Unfortunately Captain Moreau hesitated to give him large and daily doses of quinine, dreading to increase the gastric irritation and comatose condition from which the sick man was already suffering, and which resulted in his death. It would appear that this "fever of the woods" is nothing else but typhus, and is the same disease which killed the famous traveller Henri Mouhot, who explored Cambodia with signal success. Dr. Thorel, who was attached in a medical capacity to the French expedition to Mekong, describes this malady in the medical notes made by him at the time. He had an opportunity of studying it in two cases, one of which recovered well in a moderately short time by the daily administration of a large dose (eighty centigrammes—twelve grains) of sulphate of quinine; the other, whose dose was reduced to sixty centigrammes (nine grains), after the first two days, fell into a desperate state after the fourteenth day. He was perfectly deaf and comatose, and it was necessary to shake him to make him open his eyes. He was believed to be on the point of death towards the end of the fifteenth day, when, eluding the vigilance of his attendant, he threw himself into the river.

He was taken out in time to save him, but not before he had had a cold bath, which cured him with astonishing rapidity; thus affording an unwitting testimony to the efficacy of the disputed treatment of fever by cold affusions.'

AN INGENIOUS CONTRIVANCE.—At the meeting of the French Academy of Medicine on the 22nd ult., M. Delalain showed a patient wearing a prothetic apparatus invented by him, which he calls a facial obturator, intended to conceal an enormous destruction of the substance of the face. The patient was an artilleryman twenty-four years old, who had been wounded in 1870 by a shell which carried away his nose and both his eyes, made a comminuted fracture of the two upper maxillary bones, and lacerated the lower jaw. After having remained more than a year in the hospitals of Arras and Val-de-Grace, cicatrization had made but little progress in consequence of the persistence of suppuration, which the surgeon in charge of the case considered as a formal indication against all attempts at prothesis. However, in consequence of a decision of the Army Medical Council, M. Delalain's prothetic apparatus was applied, and the patient was sent back to his home. Suppuration soon ceased, and the wound soon began to cicatrize thoroughly. The apparatus to which the wounded man owes his cure is principally composed of a mask, the outside of which represents the central portion of the face (eyes, nose, and mouth) which was carried away by the projectile, and is applied exactly over the adjacent portions of the wound. Inside, the mask contains two ventilators, intended to give greater keenness to the smell, a sponge to absorb the excess of humidity in the air in foggy weather, a respirator intended to stop the dust drawn in by inspiration with the exterior air, and a channel terminating at the lobule of the false nose, perforated at the end with several small holes allowing the water from the vapour of expiration to flow out without touching the sound portions of skin on which the lateral edges of the artificial countenance rest. By the aid of this apparatus all the principal functions are entirely re-established, with the exception of sight, which is totally lost. Respiration is again normal and regular; the sense of smell is as keen as ever; the upper jaw, consolidated by a plate which doubles the palatal vault, affords sufficient resistance to allow the mastication of the most solid food; and even the voice, which had become nasal, has regained its natural tone.

MEDICINE IN SWEDEN.—An interesting article on the recent Archæological Congress at Stockholm, by M. Albert Kobin, published in the *Journal de Thérapeutique* for September 25, gives some details respecting the hospitals and medical schools of Sweden. It appears that in that country there are seventy-nine hospitals, containing 4,687 beds; receiving an average of from 30,000 to 32,000 patients, with an annual death-rate of about 2,000. The expenses of these hospitals amount to about 40,000*l.* per annum. There are nine lunatic asylums, containing 1,210 beds. In 1870, statistical returns showed 9,109 lunatics, of which 4,666 were men, and 4,443 women. There were also 3,280 blind persons, 1,504 men, and 1,776 women; 4,254 deaf and dumb, comprising 2,370 men, and 1,884 women. Stockholm contains seven hospitals, of which the most important is the Clinical Hospital, containing 300 beds. The wards of this institution are small, low, badly lighted, and in a very indifferent order. It is very difficult to ventilate them; they are therefore about to be replaced by a construction on the pavilion plan. At the head of each bed is a small black tablet, on which the clinical clerk writes his chief's remarks every day. The surgeons have begun to use the wadded splints, but find it difficult to give up the use of Lister's bandages, which they have unanimously adopted. In Norway they employ a method of dressing wounds which was used by the Americans in the war of secession. Lint and wadding are replaced by fine tarred oakum, the bandages and other portions of the dressing being impregnated with acetate of alumina. This method of treatment yields excellent results, and Dr.

Thaulow of Christiania employs it in his wards to the exclusion of any other. The only specialty to be seen in the medical wards is the plan used for the cure of acute affections of the chest, such as pneumonia and acute bronchitis. It consists in making the patient constantly respire air, holding in suspension a large quantity of aqueous vapour; the bed being entirely covered with a moderately thick cloth, in which two apertures are made for the renewal of the air. A water vapouring apparatus is placed at the foot of the bed, to the level of which the vapour is conducted by a tube. This method of medication, which, however, is not new, is tolerably successful, especially in children's cases.

THE SCHOOL OF MEDICINE FOR WOMEN.—For some time past a movement has been in action to establish a school of medicine for women, the early promoters being the late Dr. Anstie, Dr. T. K. Chambers, Mr. A. T. Norton, and Mr. Ernest Hart. The plans for the school are now so far matured that it will be opened for the winter term on October 12, in commodious premises at 30 Henrietta Street, Brunswick Square, where it is intended to build a detached dissecting room in the garden attached to the house. The full staff of lecturers has not yet been appointed; but among those who have already consented to take part in the instruction are Dr. King Chambers in the practice of Medicine, Mr. Berkeley Hill in Surgery, Mr. A. T. Norton in Anatomy, Dr. Sturges in Materia Medica, Mrs. Garrett Anderson in Midwifery, Mr. Crichton in Ophthalmic Surgery, Dr. Cheadle in Pathology, Mr. Heaton in Chemistry, and Mr. A. W. Bennett in Botany. The following gentlemen have, in addition, consented to serve on the council: Dr. Billing, Dr. Buchanan, Mr. Ernest Hart, Professor Huxley, Dr. Hughlings Jackson, Dr. Murie, Dr. F. Payne, Dr. W. S. Playfair, and Dr. Burdon-Sanderson, as well as Dr. Elizabeth Blackwell. By the establishment of this school for the separate education of women wishing to enter the medical profession, one of the objections most strongly urged against their prosecution of the necessary studies, viz., their being obliged to obtain their education in mixed classes, will be obviated, and the question as to the fitness of women for the practice of medicine and surgery will be nearer to a practical solution. A fair number of students have already entered their names.

The lectures will be delivered in the house, No. 30 Henrietta Street, Brunswick Square; but the practical anatomical course will not be delivered there. The courses which will be immediately commenced there are those of Chemistry, Anatomy, and Physiology. This step has been taken as a means of overcoming the objections which have been urged to the admission of women to medical education on the score of alleged difficulty in establishing separate classes. It is, however, by no means certain that the present effort will end the difficulties of the women who desire to obtain the right to practise medicine in England. The last public act of the late Dr. Anstie was to apply, in his capacity of Dean of this school, to the Medical Examining bodies of London for recognition of this school as a duly constituted teaching body. Without recognition, the lectures of the school, although all delivered by gentlemen who are 'recognised' elsewhere, will not count for degrees, and the students will not be admitted to examination. It would be a singular anomaly if it should be decided that a body of gentlemen whose lectures are all 'recognised' when they are lecturing to men should be refused 'recognition' when they are lecturing to women. But it is by no means impossible that this will be seen.

THE CRY OF THE CHILDREN.—Public attention in France has been much directed of late to the great decrease in the population during the last eight years. The census of 1872 shows a diminution of 370,000 since the census in 1866. Among the causes assigned for this remarkable decrease are, the enforced celibacy of the large standing army of France, the diminution of births in the marriage state, and lastly, the excessive mortality

among infants. One of the first medical men who called attention to this neglect, M. Brochard, affirmed in 1866 that reckoning pauper children, 100,000 nurse children died annually in France of hunger, privation, want of proper care, and want of superintendence. The Academy of Science endorsed this statement by crowning the work in which it was embodied. Soon after, M. Felix Boudet renewed this sad accusation, by declaring before the Academy of Medicine that France loses every year by its own fault 120,000 young infants under one year old. This first stage of life gives a considerable proportion of death-rate everywhere, and an eminent statistician has given striking expression to this fact in the observation 'that a new-born infant has less chance of living for a week than a man of ninety, and less chance of living a year than a man of eighty.' In France, however, in ordinarily favourable vital conditions, M. Bertillon calculates that, up to one year of age, the death-rate averages 21·7 per 100; that is to say, more than a fifth of the children born die at the end of the first year. In Paris, out of 54,000 children who are born every year, nearly half die before their fourth year; and if the children sent out to nurse be reckoned separately, it will be found that at least one-half (51·6 per 100) have perished in the first year of their life. Finally, if the children be classed according to their position in life, and the kind of nurse with whom they have been placed, the almost fabulous death-rate of from 75 to 80 per cent. is attained, which seems incredible even when we find it stated in official records. The Academy of Medicine has taken up this terrible blot on the civilisation of France, and has issued a code of laws for the protection of infant life. Amongst the causes mentioned in this programme as productive of the general mortality, and which may be reached by legal enactments, are the following:—The want of a system for the verification of the deaths of new-born children and nurse-children; the premature taking-out of infants for the purpose of obtaining the certificates of birth and baptism; the putting them out to nurse; the default of measures, making vaccination obligatory; the absence of any law to regulate taking children in to nurse, and especially for any administrative and medical watching over the nurse children; the persistence, especially in country districts, of injurious practices and prejudices, kept up by ignorance, respecting the care required by the children, and the adoption of the system of feeding the children too soon by hand.

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The London Medical Record.

WEDNESDAY, OCTOBER 14, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

PELLIZZARI, TOMMASI, PERRONCITO, COBBOLD, LEWIS AND GIACOMINI ON CYSTICERCI.

Great activity has of late been shown by members of the profession in Italy in reference to parasites, and especially to such of them as are in any way concerned with sanitary matters. Thus Professor G. Pellizzari recently communicated to the Medico-Physical Academy, at Florence, the results of a series of experiments conducted by himself, with the assistance of Dr. Tommasi, in regard to the temperature necessary for the destruction of cysticerci in meat. An account of these experiments is appended to Dr. Tommasi's edition of Dr. Cobbold's *Manual of the Internal Parasites of Animals*.* They were made in view of certain sanitary measures proposed to, and effected by, the Municipal Commission of Florence, the object being to prevent the distribution of measly meat generally, and especially that of swine. Signor Bosi, the superintendent of the public slaughterhouses, granted every facility in his power. According to a previously published memoir by Professor E. Perroncito, it was stated by him that measly meat (*panicultura degli animali*) required a higher temperature than that of boiling-point for the destruction of the bladder-worms in question. In this opinion Signor Bosi shared. According to the original memoir of Perroncito, the title of which is not supplied by Dr. Tommasi, we are told that 'about twenty specimens of cysticerci were collected by the author, and placed in boiling water. After twenty minutes' boiling, not one of the parasites appeared to suffer. The head continued to be drawn into the body, and when the cysticerci had their heads drawn out one by one, they still appeared to possess all the elasticity of living bladder-worms, displaying those movements of extension which are proper to parasites not yet dead. The hooks were observed regularly disposed on the proboscis, where they formed a double crown, the suckers remaining intact.' Perroncito remarked, however, that the cysticerci showed a colouring tendency towards brown, and ingenuously added that 'with the aid of two needles it became easy to lacerate the body of the cysticercus, which appeared to be swollen, and possessed of diminished cohesion of its parts.' It was evident to all eyes, remarked Professor Pellizzari, that these statements involved clear contradictions. Yet again, at page 28 of the memoir, as quoted by Tommasi, Dr. Perroncito says: 'During the past winter I introduced some little slices (*fettucce*) of muscle-flesh (8 to 10 in. in thickness), infested with

cysticerci into a vessel (*cassolina*) containing fat at the temperature of 190 to 200° Cent. (374 to 400° Fahr.) At the expiration of ten or fifteen minutes the slices of meat were fried, and the cysticerci lying at the surface had acquired a light brownish colour, as if they were toasted. By breaking up the slices one could still see the small reddish muscular bundles, whilst the cysticerci in the middle remained entire and well-preserved. Their heads displayed the hooks and suckers regularly distributed.' It is certainly singular, as Pellizzari observes, that these cysticerci, having been thoroughly fried and roasted, should still remain alive and in their normal state; but the ultimate conclusion at which Perroncito arrives is still more startling, and one which, if it were true, would not fail to create a considerable stir amongst our officers of health. On reviewing the whole matter he says 'It appears to me that the melted fat alone of measled hogs (*maiali grandinosi*) should be utilised, and I am pleased to reckon the illustrious Gerlach and all other distinguished practitioners to be of the same opinion. Permit me, therefore, being well satisfied also with the results of many other experiments, once more to advance the conclusion that, if it is not certain that the cysticerci die at from 80 to 100° Centigrade (176 to 212° Fahr.), we are quite sure that they dry up and become completely mummified at 125, 130, and 150° Cent. (257, 268, and 302° Fahr.), temperatures which we could easily produce by means of a properly constructed apparatus.'

After remarking upon the serious nature of the conclusion which Perroncito seeks to establish, Professor Pellizzari makes further use of quotations which bear upon the question as to whether the quality of the vessels in which the fat of diseased hogs is melted down may not largely affect the degree of high temperature sought to be obtained (in view of a perfect destruction of the cysticerci). Perroncito repeatedly witnessed the operations of pork-butchers; and when portions of meat were introduced, with water, into the cauldrons, he always saw that the temperature 'was maintained between 97° and 98° Centigrade.' However, this part of the question may be dismissed in a very few words, since Perroncito himself finally allows that 'the different composition of the vessels cannot elevate the temperature of the fat by many degrees.'

With the praiseworthy intention of either verifying or refuting these conclusions, Pellizzari, with the approval of Bosi and with the assistance of Tommasi, instituted a fresh series of experiments at a private laboratory (*Gabinetto d' Anatomia Patologica*). The details of these experiments are exceedingly interesting; but as the record of them occupy several pages of the appendix already referred to, we must content ourselves with a general statement of the results obtained. To be brief, Professor Pellizzari found that cysticerci, so far from acquiring a temperature of upwards of 100° Cent. for their destruction, die at a temperature of 60° Centigrade. (140° Fahr.) He had, it appears, previously taken the initiative in recommending certain measures to the Florentine municipality, in view of protecting the public health, and he had now the satisfaction of more than confirming the wisdom of these sanitary precautions. The precise nature of these measures of prevention are then stated at some length. In excessively measled animals, the fat is removed and boiled in suitable caul-

* Appendice. Parassiti interni degli Animali Domestici. Trad. dall' Inglese ed Annotato col permesso dell' Autore, dal Dott. Tommaso Tommasi. Firenze, &c. 1874.

drons, and has potash mixed with it to render it useful for industrial purposes. By these various measures the entire animal is utilised, and with such precautions there seems very little chance for the measles of the hog to arrive at the tænioid or sexually mature condition.

In the next part of his communication, Pellizzari touches upon the question of measles in beef, referring especially to the experimental labours of Leuckart and Cobbold. Quoting from the Italian edition of the *Manual of the Parasites of Domestic Animals*, by the last named authority, he finds additional support to the view already advocated and thus is led to pronounce upon the propositions of Dr. Perroncito as of no value whatever. 'But how is it,' he adds, 'that notwithstanding that so low a temperature suffices to kill these cysticeri, yet cases of tænia are continually occurring?' The answer to this question will appear in the sequel.

(To be continued.)

THE HERMIT OF RED-COATS' GREEN.

Dr. Daniel Hack Tuke has published in the *Journal of Mental Science* for October, a very interesting account of this eccentric person—whom Dickens made celebrated as Mr. Mopes. The detailed report of his life, history, and character, leaves no doubt of his insanity, while it gives room to regret that his person and property were not placed under legal protection. Of handsome means and good education, he displayed while young the utmost eccentricity and violent self-will. At his mother's death, he kept her body in the house from October, 1849, to January, 1850, and only allowed its interment when his brother, as executor, insisted. He began from this time his life as a hermit. Before this, his eccentricity had been most marked. He would occasionally hunt; 'when he did so, he rode either with his shirt outside, or in a nankeen suit, barefooted and wearing a small cap, or bareheaded, his long, uncut hair streaming in the wind, presenting altogether a very remarkable appearance; the more so, as he rode on a high-peaked saddle, a string passing round him being fastened to the peaks in front and behind, and a rope for his bridle and stirrups. . . . At other times he would ride in a carriage, his hair done up in curl-papers.' From the year 1849 he began his life of isolation, living in the same house to his death.

'As you approached, it told a tale respecting the occupant. Every window, and even the doors, were carefully barricaded, and the house was allowed to go to rack and ruin; so likewise was the garden—

"The beds were all untouched by hand or tool;
No footstep marked the damp and mossy gravel;
Each walk as green as is the mantled pool,
For want of human travel."

In the beautiful park-like meadow which surrounded the house stood a blasted oak—fit emblem of the blighted life of its owner. Another tree which had fallen across the garden walk had only been cleared away sufficiently to allow of a passage along the path leading to the house.

'When,' says Dr. Tuke, 'I paid the hermit a visit some years ago, I went up to the window of what had been the kitchen, the glass and casement of which had long disappeared, the strong upright iron bars alone remaining. Here the possessor of ample means, and a man of at least fair education, lived

day and night. He appeared to emerge from a bed of ashes (he had not slept in a bed for many years); and I observed that, when his room was entered after his death, the floor was found to be a couple of feet or more deep with the cinders which had accumulated. A farmer informs me he removed after his death fourteen cart-loads from the house and around it. On my appearing at the window he came forward, and entered (though with apparent reluctance) into conversation, his countenance being marked by an expression of suspicion. His aspect was quite in keeping with his abode. Unwashed for many years, his skin was not in a desirable condition, the white of his eyes contrasting strangely with the rest of his person. Clothes he had none; only a dirty blanket loosely thrown over him. For long his hair had been a stranger to the scissors or razor, and its profusion might have been magnificent, but that it was matted with dirt. The photograph of a sketch which was made of him as he sometimes appeared at the window, will convey a clearer idea of his appearance than any description I can give. He was about five feet six inches in height, rather muscular, his hair and eyes dark, the latter prominent, and his complexion pale. His forehead appeared to be well developed. In the room were a fire, an old table, and numerous bottles. There was also a chair, and I understand that a basket was suspended from the ceiling, in which he kept his food, to protect it from the rats which abounded in his establishment. You will remember that Dickens says he saw one run across his face as he lay asleep.

'He spoke to me in a low, rather plaintive tone of voice, and gave me the impression that he was labouring under a certain amount of fear or apprehension. Part of his conversation, which otherwise was perfectly rational, conveyed the same impression. He intimated that his relations were against him, and I understood him to give this as a reason why his house was barricaded. So far as I could make out through his prison-like bars, he was labouring under a partial insanity—a monomania of suspicion or persecution.'

He would not attach his name to any deed or paper bearing her Majesty's stamp, the reason assigned being that she was not the rightful heir to the throne. Nothing could induce him to use either a postage or receipt stamp, lest he should seem to admit the Queen's supremacy. With curious inconsistency, he had no scruple against making use of the coin bearing her image. From the same objection he would not cash his dividend warrants, which remained in his house, forming an accumulation of very dirty papers. He had the characteristic fear of poison; his diet was bread and cheese, red herrings, milk, and gin. For some years he had given up milk, suspecting that poison had been put into it. The great novelist, and others more accustomed to deal with insanity than he, did not consider that Mr. Lucas was a person whom the law could properly take under its guardianship as a person of unsound mind. We cannot help thinking that it would have been far kinder and more reasonable to recognise his obvious imbecilities, delusions, and miserable alterations of opinion and conduct as constituting him a lunatic, requiring proper care and decent attendance. Mr. Mopes is a picturesque monster enough; Mr. Lucas, from whom he was drawn, was, we think, a neglected lunatic. If the lunacy laws were always as loosely interpreted, we

should have a large crop of such hermits, and neither society nor the individuals concerned would be the better for the license to hoard their pence, neglect their property, wallow in filth, and flout the laws of decency and sense.

A CASE OF LIGATURE OF THE COMMON ILIAC ARTERY; WITH REMARKS. BY DR. A. M. BARBOSA, OF LISBON.

(Continued from page 627.)

3. *The Operation: with Considerations on the Anatomy of the Parts.*—The evening before the operation, I prescribed for the patient forty grammes (nearly $1\frac{1}{2}$ ounce) of castor oil, in order to evacuate the gases and other contents of the bowels, and thus reduce the bulk of the descending colon, the sigmoid flexure, and the rectum. This would render the abdomen more flaccid, and facilitate the manual operations, especially in an individual whose abdomen was remarkably large.

Along with bistouries, forceps, tenacula, etc., I brought to the operation two instruments which I had made especially for this case; I derived great advantage from them during the operation, and believe that they may be useful in ovariectomy. These instruments were retractors, formed each of an inflexible plate of polished white metal, bent in the form of an Italic S at the end; they were intended to separate widely the edges of the wound, and expose the vessel to be tied. They are 29 centimètres (about $11\frac{1}{2}$ inches) long; one is 5 centimètres and the other 2 $\frac{1}{2}$ centimètres wide.

[Here follows an elaborate consideration of the anatomical relations of the vessels and their possible variations. The author makes copious reference to Mr. Quain's work on the *Anatomy of the Arteries*.]

Taking into consideration the anatomical facts, I proposed to take the following precautions: 1. Not to injure, or to injure as little as possible, the arteries which would have to take part in the re-establishment of the circulation after its interruption by the ligature of the external or of the common iliac, and which lay in the region where the operation would have to be performed (the epigastric, circumflex iliac, and abdominal subcutaneous arteries); 2. Not to injure the peritoneum, but to strip it off carefully from the psoas and iliacus muscles and the iliac vessels; 3. To avoid wounding or including in the ligature the spermatic vessels, the ureter, and the satellite vein; 4. To expose as far as possible the artery to be tied, without stripping off the cellular sheath for more than one centimètre or a little more, so as to insure the probability of solid obliteration; 5. To use for ligature a cord that was not too fine, so as to avoid dividing the external coat as well as the middle and external ones in an individual sixty years old, with a spontaneous aneurism, and whose arteries were very probably in a state of fatty or atheromatous degeneration; 6. To make the incision at first with a view to the ligature of the external iliac artery if this vessel should be found in a favourable condition, and to prolong it upwards and tie the common iliac in case it should be found impossible to operate with advantage on the first-named vessel.

The patient being laid on his back, with his head and shoulders raised by pillows, the edge of the bed was placed opposite the window of a well-lighted amphitheatre. Chloroform was administered by a fifth year's student, Senhor Feijão, who also watched

the pulse and respiration. Another pupil, standing at the patient's left, gave me the instruments in the order in which I had previously arranged them on an adjacent table. Another, standing to the right of the patient, held the sponges to remove the blood from the wound, and a retractor to draw aside the edges when necessary.

The patient having been anæsthetised, I made in the lower part of the anterior abdominal wall, on the left side, a curved incision eight or nine centimètres (three to three and a half inches) long, commencing a centimètre outside the middle of Poupart's ligament, so as to avoid the abdominal subcutaneous and epigastric arteries, and carrying it upwards to a point five centimètres on the inner side of the anterior superior spine of the ilium. The first half of this incision was parallel to Poupart's ligament, and the second formed a curve with the convexity outwards. The skin and superficial fascia having been cut through, I divided the aponeurosis of the obliquus on a director. I then, by means of the director and my fingers, detached the lower border of the obliquus internus from the crural arch, and divided upwards with a probe-pointed bistoury, on a director, the fleshy fibres of this muscle. In the same manner, and with the same precautions, I divided the transversalis and its fascia. The epigastric and circumflex iliac arteries, as well as the superficial epigastric—all of importance for the re-establishment of the circulation—were thus avoided. Having thus reached the loose connective tissue, which at this part unites the peritoneum with the fascia transversalis, I detached it by means of the fingers, upwards and inwards.

I then ascertained that the aneurismal tumour occupied the entire iliac fossa, from which I stripped the peritoneum as far as the inner border of the psoas, without succeeding in reaching the external iliac artery. It therefore became necessary to extend the incision in the direction of the common iliac, in order to tie that vessel. The upper extremity of the incision in the skin was enlarged four centimètres upwards, perpendicularly to the crural arch, as far as a point three centimètres to the left of the umbilicus, and four or five centimètres above the anterior superior spine of the ilium, or at the level of the highest part of the iliac crest. The muscular fibres of the obliquus internus and transversalis were carefully divided in the same direction. The peritoneum was stripped off by means of the fingers, upwards and inwards, the spermatic vessels and ureter being raised with it. With the larger end of the metallic retractor, the peritoneum and the whole inner side of the wound were drawn towards the middle line and upwards. At the bottom, the common iliac artery was exposed, pulsating, and of very large size. Having carefully separated the artery from the vein which lay to its inner side by means of a probe, I passed a large and strong ligature under it from within outwards, by means of a Birg's needle, and tied it, bringing out the two ends of the ligature through the most dependent part of the wound. The wound bled but little, and was quite clean.

I then applied three points of suture to the upper half, and one to the lower, leaving open a small intermediate portion at the part most dependent in the position of the patient. Strips of adhesive plaster between the sutures, pieces of dry charpie, a compress, and a bandage, complete the dressing.

The pulsation and bruit in the tumour ceased

immediately on the application of the ligature, as they had done when I compressed the artery with my finger before tying it.

The patient was replaced in his bed, with the trunk in a slightly elevated position, and the whole limb wrapped in a woollen covering, and was taken back from the operating theatre to the infirmary.

4. *Progress of the Patient after the Operation.*—Half an hour before the operation, the pulse was 80, and the temperature in the axilla 38° Cent. (100.4° Fahr.); a short time after the operation, the pulse rose to 112, and the temperature fell to 37.2° Cent. (98.96° Fahr.) The left limb (on the side operated on) was a little colder to the touch than the other. The constant and more or less intense pains in the limb, which extended from the groin and adjacent parts to the inner side of the leg, had ceased. He was ordered to have beef-tea every four hours.

At 6 P.M. the pulse was 128; the temperature in the axilla 39.6° Cent. (103.28° Fahr.), and in the left popliteal space 36° Cent. (96.8° Fahr.) The whole limb was normally warm. The patient had some cough, which appeared to have been excited by the chloroform. At midnight the pulse was 136, and the temperature in the axilla and popliteal space nearly as before. The limb was less swollen.

February 8, 8 A.M. The patient had slept three hours, with interruptions. The limb felt normally warm. There was no meteorism nor increased sensibility in the abdomen, either spontaneous or on pressure. The compresses, which had become tinged with reddish serum, were removed, and fresh ones applied. The wound had a healthy aspect. 8 P.M. The dry cough was more frequent. The patient was ordered a granule of Homolle's digitaline (.0075 grain) every four hours, and a spoonful of syrup of morphia in two of tea when the cough was troublesome.

February 9, 8 A.M. He had slept little; the cough was less. The limb was less oedematous, and of normal warmth. The wound was suppurating abundantly, and the dressings were changed twice a day. He was ordered to have strong beef-tea, with toast and marmalade *ad libitum*. At midday the pulse was very weak. The urine was less high-coloured than it had been, and in better quantity; it contained no albumen. The cough was less intense; the tongue was coated and dry, there was sore throat. The digitaline, of which the patient had taken only three granules, was discontinued.

February 10, 9 A.M. The pulse was less weak, the tongue more furred and dry. The urine was scanty, high coloured, with an abundant deposit of lithates, but no albumen. There was general prostration, which had not previously existed. There was an abundant discharge of slightly fetid pus; the surface of the wound, as far as it could be seen, was covered with a thin dull grey false membrane. The abdomen was somewhat tender on pressure, but only in the neighbourhood of the wound; there was slight meteorism. The sutures were removed from the lips of the wound, which were not united. The wound was dressed three times a day, the discharge from it being facilitated by the position of the patient. Six decigrammes (9½ grains) of sulphate of quinine were ordered to be given in three doses, with sulphuric lemonade. For diet, strong beef-tea with some rice was given, and a tablespoonful of port wine every four hours. At 8 P.M. the pulse presented an alternation of weak and strong beats.

February 11, 8 A.M. The patient had slept only a

little, for very short periods, and felt very weak. The pulse was regular, but weak. The lips of the wound were much separated; the suppuration was more abundant, and fetid; the whole surface of the wound was covered with a grey, very thick, adherent false membrane. There was increased tenderness on pressure near the wound, and more meteorism. The wound was ordered to be dressed with dry charpie four times in the day, having been previously washed with a warm carbolic-acid lotion (one part in 500 of water). The prescriptions of the previous day were continued; and half an ounce of port wine was ordered to be given every three hours.

February 12, 10 A.M. Pulse weak. The tongue was covered with a very thick yellowish fur; the patient was very thirsty; the urine was scanty and deposited a copious sediment; he had had a semifluid evacuation. The prescriptions were repeated, and he was allowed a drink of *capillaire* syrup and water *ad libitum*. 8 P.M. Pulse 160, very small. The treatment was continued, and a granule of digitaline was ordered to be given every six hours.

February 13, 9 A.M. Pulse very small, 128. His countenance expressed apathy and indifference; there was increased prostration; the tongue was drier; he had a copious semifluid stool. There was less suppuration, but the discharge from the wound was ichorous and fetid. The surface of the wound, even at the deepest parts, was covered with a thick, dirty, closely coherent membrane. The wound was ordered to be dressed four times in the day with dry charpie, having been previously washed with tepid carbolic-acid solution (1 part in 300); 15 grains of sulphate of quinine were ordered to be given in six doses, and two granules of digitaline, one in the morning, the other in the evening. The diet consisted of strong beef-tea, with 20 grammes of port wine every two hours. The patient was removed from the ward to a house in the hospital enclosure, near the botanical garden, a locality well provided with light and air, and exposed to the sun.

February 14, 8 A.M.—His extremities, nose, and ears, were cold; he was extremely weak; the pulse was very small, almost imperceptible, 140. He died at 2 P.M., without having manifested any delirium or signs of suffering.

[Dr. Barbosa gives charts of the pulse and of the temperature in the axilla, and in the right and left popliteal spaces. The accompanying table (*see* next page), compiled from the daily reports of the case, shows the variations observed.]

5. *Necropsy.*—The necropsy was made twenty-four hours after death. It was not performed with so much care as was desirable, as the patient's family were in haste to inter the body, and manifested great opposition to an examination.

The operation-wound was gaping, and the whole surface was thickly covered with a very adherent thick false membrane, consisting of a pulpy, dirty grey, fetid substance, resembling in appearance that observed in sloughing hospital gangrene. On opening the abdomen, the peritoneal cavity was found to be completely closed, the peritoneum not having been wounded in the operation. The large muscles of the left half of the abdominal wall, and the ilio-psoas of the same side, with the corresponding connective tissue, were infiltrated with altered pus, which gave them a dirty lead colour. The peritoneum on the left side presented all the signs of acute suppurative inflammation, from the part co

responding to the wound as far as the middle line. Recent adhesions, formed by fibrino-purulent false membranes, between the abdominal wall to the left of the linea alba and the corresponding intestines, limited the area of inflammation; the right half of the abdominal cavity, both peritoneum and intestines, being in a normal condition. The spleen, which was not very large, was softened, and covered with concentric layers of ashy yellow false membrane, infiltrated with pus. The liver was much congested, and its surface presented numerous distinct spots of a dark-red colour, like ecchymoses; they varied from one to three centimètres in their greatest diameter, had an irregular outline, and did not pass more than two or three millimètres into the parenchyma of the organ. The signs of suppurative inflammation of the peritoneum reached as high as the left hypochondrium, and were continued in the pleura of the corresponding side, in which there was an effusion of about 300 grammes (about ten-and-a-half ounces) of yellow turbid fluid, containing fibrino-purulent flocculi; there were also deposits of the same character in the costal and pulmonary pleura. The left lung was compressed by false membranes, and was much congested with dark-coloured blood. The right lung was healthy; but the pleura, both pulmonary and costal, was covered in various parts with thin, slightly adherent, recent false membranes; these were fibrinous only, and were easily removed. The heart and great vessels presented no alterations appreciable to the unaided eye. The blood contained in them was dark, grumous, and semifluid.

| | | Pulse. | Temperature. | | |
|-------------|-------------|--------|--------------|-----------------------|------------------------|
| | | | Axilla. | Left Popliteal Space. | Right Popliteal Space. |
| February 8, | 8 A.M. | 136 | 102°56 | 96°44 | — |
| | 1 P.M. | 132 | 102°2 | 98°6 | 99°8 |
| | 8 P.M. | 136 | 103°6 | 98°6 | 100°4 |
| ,, 9, | 8 A.M. | 128 | 101°1 | 97°9 | 99°32 |
| | 12 noon | 120 | 100°4 | 97°7 | 99°14 |
| | 8 P.M. | 124 | 100°7 | 97°5 | 99°32 |
| ,, 10, | 9 A.M. | 128 | 100°7 | 97 | 99°14 |
| | 8 P.M. | 125 | 103°1 | 100°4 | 100 |
| | 11, 8 A.M. | 136 | 101°5 | 96°8 | 98°6 |
| ,, 11, | 1 P.M. | 136 | 101°6 | 97°9 | 99°32 |
| | 8 P.M. | 128 | 102°2 | 100°4 | 100°7 |
| | 12, 10 A.M. | 136 | 102°2 | 100 | 100°7 |
| ,, 12, | 8 P.M. | 160 | 103°6 | 103°3 | 101°1 |
| | 13, 9 A.M. | 128 | 100°5 | 97°88 | 95°9 |
| | 14, 8 A.M. | 140 | 100°4 | 95°7 | 94°6 |

The aneurismal tumour occupied the whole of the left iliac fossa. Its superior limit was 4 centimètres (about 1½ inches) above and to the outer side of the point where the common iliac artery had been tied, and 1 centimètre below the origin of this vessel. Externally, it touched the crista ili, and internally the brim of the pelvis. The aneurism extended down the inner side of the thigh for 13 centimètres (5 inches), to below the trochanter minor, under the crural arch and fascia lata. The large aneurismal sac was formed in the three upper fourths of the external or cellular tunic of the artery, extremely distended and hypertrophied, with the connective tissue in the neighbourhood thickened by the chronic inflammation to which it was subjected during the development and growth of the tumour. Its thickness, including the more adherent layers of fibrin,

varied from 2 to 10 centimètres (0·8 to 4 inch). At some points of this part of the sac, Dr. Camara Cabral and I discovered by microscopic examination vestiges of the inner and muscular coats of the artery, in the form of elastic and muscular fibres in a state of granular and fatty degeneration, as well as granules and masses of hæmatin. In the lower fourth of the aneurism, the sac appeared to consist solely of connective tissue formed into a fibrous membrane from 2 to 4 centimètres thick. The communication between the artery and aneurismal sac was established by means of an elliptical opening, with smooth rounded edges, measuring twenty millimètres (about four-fifths of an inch) in its greatest diameter, which was in the direction of the axis of the vessel, and ten millimètres in the opposite direction. The lower part of this opening was scarcely a centimètre distant from the origin of the deep femoral artery; and its upper part was eight and-a-half centimètres from the origin of the external iliac. The aneurismal sac was full of coagula; some fibrinous, in the form of laminæ more or less irregularly deposited; the most external being adherent to the inner surface of the sac, and more or less combined with it, and the greater part being dark, soft and diffuent. The blood having been removed, the aneurismal sac was macerated for some days; it was found to be twenty-seven centimètres (ten and a half inches) in circumference, and three and a half inches in its transverse diameter. From the origin of communication with the femoral artery to its upper limit, it measured nearly six inches; and from the same point to its lower limb, four inches and three quarters. The femoral artery, above and below the surface, was in immediate contact with the sac, and was flattened and compressed by it. The external iliac artery, which did not form part of the aneurism, was, however closely adherent to and flattened by the sac, with the exception of two centimètres at the upper end.

The common iliac artery had been tied five centimètres (nearly two inches) from its origin, and a centimètre above its division into the external and internal iliacs. The interior of the artery, from the point of ligature to its origin from the aorta, was occupied by a cylindrical coagulum, not deprived of colour, consistent, and fibrinous; in fact, as was observed, by a thrombus of black soft blood, in which it was difficult to find a small fragment of fibrillated fibrin. This thrombus had no adhesions to the corresponding surface of the artery; on the contrary, it was very easily separated. At the point of ligature, the continuity of the inner and middle coats was interrupted all round, their tissue having been broken through by the ligature. The arterial wall of the ligatured part was thus solely formed of the external coat, which had become adherent at its points of contact by means of fibrous connective tissue—a true new formation proceeding from the irritation produced by the ligature. This newly formed tissue occupied an extent of five or six centimètres; it appeared to the unaided eye to be marked with striæ or fasciculi; and, on examining it with the microscope, Señor Amado found it to present all the characters of fasciculated connective tissue.

Anatomical and microscopical examination of the lower part of the aorta, of the common and external iliac arteries, and of the femoral where the aneurismal rupture had taken place, demonstrated the existence of granulo-fatty degeneration in various parts of the

inner coat and of the adjacent layers of the middle coat. In many points even the unaided eye could detect the disease of the arteries, not only by the change of colour and slight tumefaction, but also by the existence of some hard calcareous deposits. In the softer points there were noticed fatty granules and crystals of cholesterine. In the apparently healthy portions, the microscope discovered numerous fat-granules. At some points in the deeper layer of the inner coat of the arteries, colouring matter of the blood was found in the granular form (hæmatin) and in the crystalline form (hæmatoidin).

The blood, when examined under the microscope, did not show any vestiges of lower organisms, bacteria, or any notable change. The exudation from the wound, beyond pus-globules and some changed and granular blood-corpuscles, contained only a few vibriones.

ANATOMY AND PHYSIOLOGY.

MACH ON PHYSICAL EXPERIMENTS ON THE SENSE OF EQUILIBRIUM IN MAN.—‘In travelling along a sharp railway-curve,’ says M. Mach, in a recent paper to the Vienna Academy, ‘the houses and trees often seem to deviate considerably from the vertical, their tops leaning away from the convex side of the curve. On the other hand, one often notices an oblique position of the carriage, and then holds the trees to be vertical. It is known that the rail on the convex side is elevated a little to compensate centrifugal force. But the difference of level can only correspond to one rate of speed. The apparently contradictory facts mentioned are readily explained, if we suppose that one perceives the direction of the vertical, and always considers as vertical the direction of acceleration of the solid parts of the body, resulting from gravity and centrifugal force. If we travel with the speed corresponding to the difference of level of the rails, and to the curvature, we know nothing of the oblique position of the carriage. Then the houses appear oblique. In every other case the carriage seems oblique.’

M. Mach made a number of experiments on the subject; some of which we will briefly describe. The apparatus consisted of a large vertical frame, R, which could be rotated about a vertical axis, A; within it a smaller frame, r, capable of turning round another vertical axis, a, which might be removed to any suitable distance from the first. In the second frame was a chair for the observer, which could be turned about a horizontal axis, a. He could be enclosed in a paper case.

Experiment 1.—The observer, sitting enclosed in the case, his chair was turned back round the axis, a, and he was required to show by a rod the direction he thought vertical. It appears that, as he approached the position of lying on his back, he estimated the divergence from vertical as less than it really was.

Experiment 2.—The observer, sitting upright in the paper case, was rotated about A. He perceived the direction and (roughly) the amount of the turning; but if this were continued uniformly some seconds, the feeling of rotation ceased; and when the frame was left to itself so that it became gradually slower in movement, a feeling of opposite rotation arose. This feeling was strongest if the frame were suddenly stopped, and it continued some seconds.

Thus was perceived, not the angular velocity, but the angular acceleration. An optical phenomenon was also noted. If, after stoppage, the case were suddenly opened, the whole visible space seemed to rotate with its contents; and it was as if it were within a second space, conceived to be quite fixed.

Experiment 3.—The frame was stopped suddenly, and, after one-and-a-half to two seconds, suddenly set going again in the same direction. The feeling of opposite turning, which arose in the interval, disappeared when the motion was resumed.

Experiment 4.—If, in experiment 2, the head were bent forward, and raised after stoppage of the apparatus, the observer, if the rotation had been (say) from right forward then to left, felt as if turning from right upwards to left, and was afraid of falling to the side.

Experiment 5.—In experiment 2, images at rest on the retina seemed as if moving. The idea was suggested that this motion might be neutralised by an opposite one on the retina. A hollow drum was substituted for the paper case, capable of turning about a vertical axis, and lined inside with paper, on which were drawn equidistant vertical lines. As the frame was rotated, the drum moved with it; but on the former being stopped, the latter still went on, with a retarded motion. The observer, within the drum, felt as if it were at rest and himself in so much the faster opposite motion. Thus apparent motion can be compensated with actual.

Experiment 6.—The observer was placed a mètre from A, in nearly vertical position, looking towards A, and rotated (about A). When the angular velocity became constant, the sense of turning ceased, and he only thought himself more on his back than was the case. The direction of resultant acceleration of motion was taken for vertical.

Experiment 7.—The arrangement was the same as in experiment 6, only by turning the frame r about a, the observer was made to look in a direction at right angles to the plane of the axes A and a. When the velocity became constant, he seemed to himself, along with the case, to be constantly inclined to the side, his head inclining away from the axis of rotation. On stoppage, he felt righted again.

Experiment 8.—In the arrangement for experiment 7, a pendulum being hung in the case with a graduated arc, it was observed to diverge 10° to 20° , showing a centrifugal acceleration about one-fifth to one-third the acceleration of gravity. Now, this pendulum was thought vertical during the rotation, while the case and the observer himself seemed inclined.

Experiment 9.—When, in experiment 6, the apparatus was suddenly stopped, the observer seemed to himself for a moment inclined sideways, with his head in the direction of rotation. Each momentary progressive acceleration whose direction did not coincide with the true vertical, momentarily altered the apparent vertical.

Experiment 10.—Suppose a large equal-armed balance, each arm being two mètres in length. The observer was in one scale, and he was balanced with weights in the other. If the balance were set oscillating, the observer underwent an almost purely pendulum motion. With a vertical excursion (from the position of equilibrium) of 15 centimètres, and time of oscillation of the beam 7 seconds, the vertical acceleration was 12 centimètres, or about 0.012 of the acceleration of gravity. The oscillations were

then, for the blindfolded observer, at about the limit of perceptibility. If the excursions were greater, he each time supposed he was sinking, shortly before reaching the highest point, or when at it. And he supposed himself to be rising shortly before he reached the lowest point, or when at it. The formula shows that the acceleration downwards is a maximum at the highest point of the course, and that upwards, at the lowest point. M. Mach infers we are also very sensitive to variations in the acceleration of gravity; and in vertical motions we perceive not the position nor the velocity, but the acceleration.

M. Mach attempts an explanation of the phenomena to the following effect.

Conceive a cavity covered with nerve-endings, in a body B, containing a liquid or solid substance A. The latter will (1), because of gravity, press on one part of the walls more than on the rest, and thereby the position of B relatively to the vertical will be indicated. (2). With any acceleration of B, A will exert a counter acceleration (a counter pressure), which is compounded with the acceleration of gravity; so that both the intensity of the pressure and the place of pressure on the wall of the cavity are changed. And (3) with an angular acceleration of B, A will tend to make an opposite rotation. By 1 and 2 B receives a knowledge of its position and progressive motion; by 3, a knowledge of its turning motion. Now, the vestibule, with the semicircular canals, are such an organ as has been described. It is also probable that for 1 and 2 there are special nerves distinct from those for 3. If we consider the canals, they seem specially fitted for application of the principle of surfaces. For every angular acceleration about the axis perpendicular to the plane of the canal, the contents must exert a rotation-moment in the opposite direction, which the nerves of the ampullæ convey further as indication of this angular acceleration.

If we accept with Müller that the ampullary nerves have the special property of responding to every stimulus with a sensation of turning, we shall find many phenomena observed by Flourens, Golz, and others, reduced to one principle.

We must further suppose that a momentarily acting rotation-movement calls forth a sensation of turning in the opposite direction (of considerable duration), which, however, can soon be extinguished by an opposite rotation-movement.

M. Mach, in concluding his paper, describes some attempts he made to impart a rotation-movement to the contents of the semicircular canals by means of electricity. Like Ritter and Purkyne, he succeeded in sending a battery current from ear to ear. 'On this experiment,' he says, 'I based new hopes. Suppose, in the plane of this paper the north and south poles of a horse-shoe electromagnet, which is under the paper; and, in a horizontal Barlow disc situated between the poles, send a current from the north pole to the south; a rotation begins in the direction of the hands of a watch. If, now, the head, traversed by a current from ear to ear be placed between the poles, the person experiences, at opening and closing of the circuit, a turning jerk (*Ruck*) or shake; but I did not succeed in obtaining a pure phenomenon, probably from want of anatomical local knowledge. I do not doubt, however, that an expert physiologist may obtain good results from this experiment.'

DAVID ON THE PHYSIOLOGICAL ACTION OF APOMORPHIA.—The author describes, in the *Comptes Rendus* of August 24, some experiments made at Geneva on the physiological action of chlorhydrate of apomorphia. The solution, administered to a dog, by subcutaneous injection, in a dose of a half to two milligrammes, produced vomiting in four to six minutes, preceded by very short nausea. For a cat, the emetic dose was much higher; and it seems to vary from one animal to another. Thus thirty-five milligrammes of the preparation was insufficient to produce vomiting in one cat, while another vomited after two milligrammes. For the pigeon, the minimum emetic dose is four milligrammes. Vomiting was produced in man by three to four milligrammes. There was slight uneasiness and vertigo immediately before it. The vomiting came on suddenly, and was renewed three or four times. Recovery soon followed.

M. David treats his results under two heads.

1. *Influence of different agents on the action of chlorhydrate of apomorphia.*—Chloroform, given in resolute dose, retards the action of apomorphia in the dog, till the period of waking. The vomitings are then produced by the same doses as in the normal animal. Chlorhydrate of apomorphia, administered during the period of waking, acts in the same doses and in the same time as on the animal not chloroformed. Chloral injected into the veins suspends entirely the action of apomorphia. Morphia, even in a dose of three centigrammes, in moderately healthy dogs, hinders the action of apomorphia. The employment of apomorphia would thus be useless in the case of acute poisoning by morphia. The author obtained vomiting with a dose of four milligrammes in a man who, habituated to morphia, received about sixteen centigrammes of it daily by subcutaneous injection. In the pigeon and the guinea-pig, the morphinism produced by a dose of two centigrammes does not prevent the physiological action of apomorphia (which will presently be noticed). Section of the vagus nerves, in a dog, with or without chloroform administered, does not in any way modify the action of apomorphia. In an atmosphere surcharged with oxygen, the dog merely vomits under the influence of the same doses and in the same time as when placed in atmospheric air. Asphyxia nearly complete, prolonged during more than a quarter of an hour, has also no influence on the action of chlorhydrate of apomorphia.

2. *Excitant action of apomorphia.*—Chlorhydrate of apomorphia seems to have a special action on the nerve-centres of certain animals, such as the cat, the pigeon, the rabbit, the rat, and the guinea-pig. Cats, after injection of two to thirty-five milligrammes of apomorphia, present, almost immediately, all the symptoms of fear. They shortly escape to a dark corner of the room, take alternately a few steps forwards and a few backwards, and smell the floor, pushing the head quickly forward or to the side. The phenomenon is accompanied with an abundant salivation. This agitation had been attributed by M. Siebert to the nausea before vomiting, but the author agrees with M. Hartnack in rejecting this interpretation. He found that the agitation was also produced when the dose of apomorphia was not sufficient to produce vomiting. And it is not always interrupted by the stage of vomiting. Other emetics (tartar emetic and ipecacuanha), produced vomiting preceded by manifest nausea, but without any

symptom like those which the apomorphia produced.

Rabbits, a few minutes after injection of six to eight milligrammes of apomorphia, rush from one corner to another of their cage, driving against its sides, constantly beating with their hind feet, and emitting slight cries. They start at the least movement made near them. During this time, the respiration is rapid and loud.

The pigeon, after injection of one half to four milligrammes, is agitated, springs, cries, pecks with violence indifferently at spots on the ground, or seeds offered it, pecks also its feathers (as if seized with severe itching), and other pigeons near it. This state may last more than an hour and a half, and is not modified by the regurgitations which take place when the dose is sufficient to produce vomiting (four milligrammes). In two pigeons, from which the brain had been removed, the agitation was not produced. Other emetics (above named) produced nothing at all like what has been described.

Morphia in the dose of one centigramme simply made pigeons drowsy, without giving rise to any agitation.

The rat, with a dose of two to four milligrammes, enters into continual agitation. It is in a state like drunkenness, steadies itself on its legs, and falls backwards, spite of incessant efforts to the contrary. This agitation ceases in an hour or two; but the animal continues giddy for a long time.

The guinea-pig, three or four minutes after injection of a half to twelve milligrammes, becomes very terrified. It shortly begins to gnaw, without interruption, whatever is presented to it—the flag-stone of the floor, the feet of tables, etc. This is sometimes accompanied with copious salivation. The agitation lasts two hours and more, and is very similar to that described above.

ALEX. B. MACDOWALL.

PATHOLOGY.

KLEIN ON THE PATHOLOGY OF ENTERIC FEVER. Dr. E. Klein has for some time past been engaged, at the instance of the Medical Department of the Privy Council, in investigating the morbid anatomy of typhoid fever by means of the microscope. As this inquiry is temporarily suspended, he has communicated an abstract of the results to the *Centralblatt für Medicinischen Wissenschaften*, for Sept. 21 (no. 44), from which we take the following.

1. Sections (previously hardened) of the ileum from persons dying in enteric fever, show that an active (*rege*) absorption of peculiar organisms has previously occurred in the mucous membrane over Peyer's patches, especially in that just surrounding them; and that these are carried thither by the lymphatic vessels and veins of the mucous membrane.

2. The earliest case examined by him (dying seven days after the first occurrence of headache) exhibited peculiar greenish brown, for the most part spherical bodies, which were found within (*in Lumen*) the follicles of Lieberkühn; the size of these was somewhat variable, the largest being two or three times as large as a red blood-disc, whilst the smaller were half or quarter of that size. They lay for the most part massed in groups, presenting an olive-green tint. At the edges of such groups, or

where they lay singly, many sectional outlines were visible—reniform, biscuit-shaped, etc. These minute bodies were also found in the mucous tissue, and appeared to be contained within the lymphoid cells (lymph-corpuscles) of the adenoid tissue. The veins and some of the lymphatic spaces were very rich in these organisms. In the former, they soon proceeded to exhibit a rapid double and quadruple fission, thus splitting off into still more minute, and for the most part greenish yellow, granular micrococci; which combined together in twos, or fours, or in necklace (rosary-like) chains, or even actual zoogloea. The micrococci, moreover, were closely related to a mycelium with branching threads, smooth outline, and a greenish-yellow colour. [These results are similar to those which Dr. Klein communicated to the Royal Society as regards sheep-pox—the account of which is now in the press]. These organisms are not only found close to those Peyer's patches which are moderately swollen, but also in parts of the mucous membrane which only exhibit very slight general swelling, when viewed with the naked eye. The Peyer's patches in such parts exhibit peculiar changes which will be described hereafter. In addition to these organisms, one finds masses (*Ballen*) of greenish-yellow micrococci pervading the mucous membrane from the free surface, through the epithelium, and in the tissue itself, especially in Lieberkühn's follicles, and passing from these again into the lymphatic canals. [As Dr. Klein promises a continuation, any comments would be premature.—*Rep.*]

W. BATHURST WOODMAN, M.D.

MEDICINE.

JACKSON ON HEMIPLEGIA.—In the papers mentioned in the note,* Dr. Hughlings Jackson reviews the whole subject of hemiplegia, and the lesions of the corpus striatum which induce epilepsy and chorea, with special reference to the question of recovery from severe injuries of the great motor ganglia of the central nervous system. On the latter point, in particular, his views have been much misunderstood, and consequently misrepresented. It may, therefore, be as well to set forth as clearly and succinctly as possible, what Dr. Jackson really does teach and write upon these interesting topics. This is, perhaps, still more seasonable, as a recent paper on 'Brain-Injuries,' by Dr. Henry Day, of Stafford, in the last volume of the *St. Andrew's Medical Graduates' Transactions* (vol. vi. pp. 210-228) seems, if we do not mistake the author's meaning, to point in a somewhat backward direction, and to ignore almost completely the positive results of clinical experience, and *post mortem* examinations, in favour of some apparently 'glaring instances' of

* 'On a Case of Recovery from Hemiplegia.' By J. Hughlings Jackson, M.D., F.R.C.P., Lond., *Transactions of the St. Andrew's Medical Graduates' Association*, vol. vi. (for 1872 and 1873) pp. 60-68. Idem.: *The Lancet*, 'Mirror of Hospital Practice.' May 2, 1874, p. 618.

'Clinical Lecture on a Case of Hemiplegia.' By J. Hughlings Jackson, M.D., &c. Reprinted from the *British Medical Journal* for July 18 and 25, 1874.

See also *Medical Times and Gazette*, December 21, 1867; *Medical Mirror*, September and October, 1868; and 'A Study of Convulsions,' by the same author, in the *Transactions of the St. Andrew's Medical Graduates' Association*, vol. iii.

exceptionally severe injuries to the brain, which were followed by but slight and apparently insufficient symptoms. It is possible that some of the opponents of all attempts to localise nervous actions in definite regions of the brain are swayed by conscientious motives, which we must respect. They fear lest 'giving a local habitation and a name' to special functions of the nervous system should end in a crass materialism. In this we think they err, for surely an instrument is no less an instrument, merely because it is complex; and if we reason from analogy, we would say that the more perfect and the more complex the instrument, the more individualised and intercorrelated must be the separate parts and portions of the mechanism. A devout physiologist of robust mind need scarcely be more shocked at discovering that the brain is divided into regions of different properties and powers, than a devout astronomer is scandalised or disturbed by the resolution of nebulae into distinct worlds, and systems of worlds. The wonder and reverent adoration of the latter would in all probability be shared by the former, so soon as he fully comprehended the perfection and complexity, yet withal real simplicity of the mechanism of thought. Our present business, however, is not with the ultimate tendencies of this or that system of psychology, but a brief review of the published teachings of Dr. Hughlings Jackson on the subjects named above.

The first thing that strikes one on comparing the clinical lecture which stands third in the list with the best teachings of our text books, or even with such good stuff as Dr. Todd's clinical lectures on the same subject, is the great breadth of Dr. Jackson's views. He teaches the student emphatically that hemiplegia, chorea, and convulsions, whether 'epileptic' or others, are but symptoms; that the 'case' which presents such and such symptoms is to be studied as a whole. Listen, he says, to his heart and lungs; examine his arteries, use the ophthalmoscope, test his urine, inquire into his history, personal and relative, and do not be content with merely observing and analysing, however minutely, his special nervous symptoms. Although these may not be the exact words, they express most clearly not only Dr. Jackson's teaching, but his practice. At page 1 of this lecture, he writes: 'Do not take a nervous view of nervous diseases. An examination of the patient altogether, and a careful inquiry into his individual and family history, are the things of most importance. The patient's specially nervous symptoms, such, for example, as aphasia and hemiplegia are, from a medical point of view, very often of less consequence than his general clinical state.' It is very interesting to note the stress Dr. Jackson lays upon arterial lesions. 'Most nervous symptoms are not directly of nervous origin. The most important and most common of them are of arterial origin; an artery bursts, and the escaped blood tears up a nervous centre; or an artery becomes blocked up, and a nervous centre softens. Nervous organs very often indeed suffer because their arteries are faulty. . . . These considerations are not to be lost sight of in the consideration of hereditary, as we shall see when we come to speak under the head of Softening of the Brain.'—[*Clinical Lecture*, p. 1.]

In the clinical lecture before us, Dr. Jackson speaks chiefly of the hemiplegia resulting from damage to either the corpus striatum or optic thalamus; in fact, 'the common form of hemiplegia.' 'It depends on destruction of the corpus striatum or optic thalamus.

Observe the manner of statement. It is not scientifically exact to speak of it as a symptom of softening, or of cerebral hæmorrhage, or of tumour; for it is a symptom of destruction of the corpus striatum by any pathological process whatever. I should say "destruction of function," because, although in most cases there is actual breaking up of nerve-fibres and cells, yet in one clinical variety of hemiplegia there is only a temporary exhaustion of the nerve-fibres and cells of the corpus striatum. This is the epileptic hemiplegia of Dr. Todd. The following is my speculation as to its mode of causation. There is in the convulsion a strong discharge of grey matter of convolutions through the corpus striatum to the muscles convulsed. If the discharge be excessive, the corpus striatum is left temporarily *hors de combat*; its nerve-fibres and cells are paralysed in the same way, I suppose, as a nerve can be experimentally paralysed by excessive artificial stimulation.' In a foot-note Dr. Jackson explains epileptic mania on the same principle [*Ibid.* p. 3]. He says strongly, 'Slight and transitory palsy may depend on permanent, although limited, destruction by a very small clot, or softening from plugging of a very small artery. I shall afterwards prove to you that patients recover from hemiplegia, notwithstanding that the paralyzing lesion is not restored.' He believes 'that recovery is to be explained on the principle of compensation. The structure of a nervous organ is, he believes, such that each part of it represents slightly (although such part in some special manner) what the whole organ represents in greater degree.' For example, Dr. Jackson thinks that each part of the corpus striatum represents the face, arm, and leg—that, so to speak, the corpus striatum is a mass of little corpora striata. Let us try to illustrate this, although imperfectly, by analogies and symbols. Let us suppose a note on a trichord piano to be damaged. As long as one, or still more two, of the wire-strings were unbroken, the damage is reparable by simple tuning, and the removal of the broken wire. It is only when all three are destroyed that total loss of the note results—irremediable, except by new structure. Or say the corpus striatum represents, in each part, face, arm, and leg, which we will represent by letters: then the individualised functions may be represented by letters of different type, thus:—

| | | |
|------------------------------------|---|----------|
| 1st, or lower segment . . . | = | l. a. f. |
| 2nd, or intermediate segment . . . | = | a. f. l. |
| 3rd, or highest segment . . . | = | F. A. L. |

For these illustrations Dr. Jackson is not responsible. The following extract from the *Medical Times and Gazette*, of Dec. 21, 1867, quoted again in the *St. Andrew's Medical Graduates' Transactions*, vol. vi. pp. 60-61, puts this still more clearly.

'There is no doubt that a large part of one cerebral hemisphere may be destroyed without any permanent mental effect. It is equally certain that a part of the corpus striatum may be destroyed without any permanent hemiplegia. But no one denies that the hemisphere is the chief seat of the mind, and that through the corpus striatum the rest of the nervous system acts on the limbs. In incomplete hemiplegia—to limit the illustration to the arm—there is not palsy of part of the arm, but partial paralysis of the arm (*vide infra*). So it seems that each movement of the arm is represented in each part of the corpus striatum, or conversely, that each part of the corpus striatum represents the movements of the limbs as a whole. In complete hemiplegia

the arm cannot be moved in any way, except by swinging it from the shoulder; and in incomplete hemiplegia the fault is not so much that some one or more motions cannot be performed at all, the rest of the arm being good, but that although all the movements are to be done, they are all badly done. And when the destruction of nerve-tissue is slight in extent, there need be no permanent defect in any manner of movement. Applying this principle to the brain, we may understand how it is that there may be a large abscess in one cerebral hemisphere, and yet no obvious mental defect. Or, to take with arbitrariness a special series of motor and sensory processes, we see how it happens that disease of the fore part of the anterior lobe, of the posterior lobe, and of the hemisphere above the lateral ventricle, need not produce any defect of the psychophysical processes which constitute the phenomena of language. Just as in the arm nervous system, there is a gradually increasing complexity, from the delivery of nerves to muscles, through interweaving of nerves in the nerve-trunks, to an interrelation so great in the corpus striatum, that damage to a small part of this organ weakens the whole of the limbs, and yet destroys no single movement—so we may fairly infer that, continued from the corpus striatum, deeper in brain—further in mind—are still more complex arrangements of motor processes, reaching a minute degree of interrelation and a vast width of association with the complex motives—the sensation aspect of mind—of the hemisphere, and becoming at length so complete, that a quantity of brain may be destroyed without any special mental defect resulting [? being discoverable].

Dr. Jackson cannot see the force of the general objection to his embolic view of chorea, that the patients recover, sometimes rapidly. He says—‘The fact I have always admitted, but I could never see that the objection was the fatal one it was assumed to be. I have made *post mortem* examinations, showing that recovery had occurred from paralysis due to far grosser cerebral lesions than I or anybody else ever supposed to exist in chorea.’ ‘Let the state of the corpus striatum be carefully considered. There can be no doubt that there are cases of hemichorea exactly like cases of that form of hemiplegia which results from disease in the corpus striatum—like them in that the region affected is the same (face, arm, and leg), is of course meant. It is really far simpler to study first the symptoms of hemiplegia, and next those of chorea and convulsions. The hemiplegia is to be looked on as a sort of experiment, telling us what movements are represented in the corpus striatum and its region. If in another case we find activity of those very parts which are paralysed from a clot in the corpus striatum, what is the inference?’ Dr. Jackson’s views as to the seat and nature of chorea, are well put by Dr. Tuckwell (of Oxford) in the fifth volume of the *St. Bartholomew’s Hospital Reports*—to which we must refer. Some criticisms and Dr. Jackson’s answers to them will be found in the *Obstetrical Society’s Transactions*, (vol. x. p. 147 *et seq.*) The first case of recovery is one of a man aged twenty-one, who had complete left hemiplegia of the usual type, without either cardiac disease or albuminuria. He died in a bath twenty-one months afterwards, but it is not clear whether suicidally or not. Nearly the outer half of the corpus striatum was destroyed. In the second case (*Lancet* May 2, 1874), there was no necropsy, but the woman recovered in three weeks. The

diagnosis made was syphilitic embolism. As regards the gravity of paralysing lesions, Dr. Hughlings Jackson remarks (foot note to Clinical Lecture, p. 11 and elsewhere), that ‘the word grave includes two factors—size of lesion (quantity of nerve-tissue destroyed), and suddenness of lesion (rapidity of destruction). The element of suddenness is a very important one. As Prévost remarks, the deviations mentioned in the text usually accompany “brusque” lesions. Reference is made here to lateral deviations of the eyes and head.’

In a clinical point of view, Dr. Jackson makes three degrees of hemiplegia. The first kind is with slight facial paralysis of the same side, chiefly of the lower two-thirds of the face—the tongue is little affected, and its paralysis does not affect its nutrition. Dr. Jackson thinks that defective articulation of ‘labials’ is due chiefly, if not entirely, to the palate—a statement which, however true in some cases, appears to us in direct opposition to the facts observed in some cases of general paralysis. The second degree of hemiplegia involves some of the trunk-muscles also. To save space, we copy Dr. Jackson’s description—the hemiplegia being supposed to be dextral. ‘1. The head turns to the left. 2. Both eyes turn to the left. 3. The muscles of the chest and belly are weakened on the right. 4. The muscles passing from the trunk to the right limbs are paralysed. 5. The face is paralysed on the right side. 6. The tongue, on protrusion, turns to the right. 7. The right leg is paralysed. 8. The right arm is paralysed.’ The third kind is one of universal powerlessness, paralysis of both sides of the body, or as we may say, there is complete hemiplegia plus paralysis of the other side of the body—but hemiplegic inasmuch as the clot or other lesion is only one-sided, but always severe—a condition, as Dr. Jackson justly remarks, very difficult to be distinguished from opium-poisoning in some cases.

[We feel tempted to quote largely from all these papers of Dr. Jackson’s, but space does not permit. Enough has been said to show that his reasoning is justified, at least to a very large extent, by known facts. It is no longer possible to sneer at this sort of teaching as transcendental. All our best clinical teaching is and must be of this kind. Nature is not to be bound down by our narrow nosologies, and the cramped notions of our text-books. Yet amidst all the apparent confusion and disorder of disease, there is a method, a divine cosmos, which is discoverable only by the most painstaking observation on the one hand, and a logical use of the imagination on the other. Neither singly can suffice.—*Rep.*]

W. BATHURST WOODMAN, M.D.

WESTPHAL AND BERNHARDT ON CERTAIN HITHERTO UNRECOGNISED MOVEMENTS OF THE EXTREMITIES IN HEMIPLEGICS.—A paper in no. 36 of the *Berliner Klinische Wochenschrift*, by M. Bernhardt, on a special kind of consentaneous muscular movements in hemiplegics, should be studied side by side with one by Dr. Westphal in the last number of the *Archiv für Psychiatrie*. The observation is original, and, so far as we know, forms a new contribution to the incomplete science of nerve-action.

Westphal begins by mentioning a few of the various movements that may occur in the limbs of hemiplegics withdrawn from the influence of the will, such as lifting of the shoulder in yawning, sighing, or in voiding excrements. Besides these, it

may happen that a hemiplegic, in wishing to contract certain muscles, puts in action their antagonists instead, a phenomenon described some time since by Hitzig. The especial peculiarity of the movement under notice is, that *when the patient stretches for instance one or more fingers, or the hand of the sound extremity, the movements are executed in an identical manner on the side affected by hemiplegia.*

A brief *résumé* of one of the cases given, will illustrate the subject. A man aged twenty-five, paralysed from his youth on the left side, was admitted to the Charité. Up to his twelfth year the hemiplegic side was subject to cramps, not, however, attended with loss of consciousness. Movements of the hand and fingers on the left side were impossible, unless the corresponding movements were made with the right extremity. As soon as the patient made any movement with the sound (right) side and fingers, this was repeated on the left, and it was quite out of his power to prevent it. A most singular impression was produced by this muscular echo—if the phrase may be allowed; thus, when on one occasion he scratched an itching spot on the face with his right hand, the left was raised for the same purpose. When *passive* movements of the right hand were made, the ‘echo’ was not observed. The muscular sensibility was entirely absent, so that he could not hold anything in his hand without keeping his eyes fixed upon it; the moment he took them off the object dropped. This peculiarity is not invariably associated with the phenomenon in question. The toes and foot of the left side partook of the same morbid ‘echo.’ What is the interpretation of these identical bilateral movements? Let it not be forgotten that Müller, of Coblenz, in 1844, noticed the tendency of muscles to act in groups of association. He remarks that practice is requisite for keeping one eye open, that many are unable to move the muscles of one side of the face only, and that the muscles of the extremities are to a less degree so implicated. In early life and in old age the same thing is seen. Westphal thinks that the pathological process which attacked the hemisphere of the side opposite to the paralysed one spared the large motor ganglia. Thus in left hemiplegia a part of the right brain would be so affected as to be unable to convey will-impulses to the left extremities; from the left brain impulses would continue to be directed on the motor ganglia, and thence through the decussation of the pyramids to the nerves of the right side. But the excitation set up by the influence of the will in the left brain is carried by the commissural fibres to the other side, where, meeting with the still intact large ganglia, it begets a movement in the left extremities, similar to that on the opposite side. The reason why, under ordinary physiological conditions, the same thing does not happen is, that by practice they are suppressed, owing to a restraining influence from the other hemisphere. When elderly persons suffer hemiplegia, these consentaneous movements are not seen, because, according to the above theory, the motor ganglion are affected, whereas, in the affections of childhood, parts only of the hemispheres are affected, as pathology has proved over and over again.

M. Bernhardt's remarks are on the case of a boy who, when eight years old, suffered from convulsions after scarlatina, and had right hemiplegia and aphasia, his stock of words consisting only ‘yes’ and ‘ah.’ The movements in the right shoulder and elbow were slower and made with less

force than those in the left; still, to some extent, they could be executed, and, when performed, excited nothing similar on the other side. If a movement were made energetically on the left side—if, for instance, the left forefinger were bent towards the wrist—it was repeated in the right hand, and could not be prevented in spite of all the patient's wishes. If the right hand were rolled up into a ‘fist’ the left remained quiet, but if the fingers of the right hand were moved alone, then the left fingers, especially the thumb and index, echoed the movement. Closure of the right hand caused only the slightest movement of the left index-finger.

Dorso-plantar flexion of the left foot produced an exactly corresponding action in the right foot, though nothing ensued on the reverse movement. The prick of a needle in the left hand only excited movements in the right hand. No opportunity for *post mortem* verification of Westphal's theory has as yet been offered, but M. Bernhardt agrees with him in the interpretation of the facts.

T. C. SHAW, M.D.

OBSTETRICS AND GYNÆCOLOGY.

REVILLOUT ON CONSTRICTION OF THE VAGINA, VAGINISMUS SUPERIOR, AND VAGINISMUS PROPERLY SO CALLED.—In the *Gazette des Hôpitaux* (August 29, 1874) Dr. Victor Revillout investigates a case that very much surprised him, and which appeared inexplicable from our present state of science.

Three years ago a young woman, a primipara, came into the Hôtel-Dieu to be confined. The labour was prolonged. The *interne* applied the forceps. The blades were apparently introduced with ease, the head of the fetus being at the brim. As the first efforts at traction were ineffectual, the forceps was removed, and the physician in charge was sent for. He arrived in three-quarters of an hour. On attempting to apply the forceps, he found it impossible to do so, as, a little below the os, the vagina was divided into two parts by what seemed to be a kind of double band, stretching completely across from before backwards, almost perpendicularly to the axis of the body. In spite of the affirmation of the *interne*, he refused to admit that the blades had ever been passed, and the bands were, in his estimation, cicatricial. He made a long incision on each side of the vagina parallel with its axis, almost perpendicular to the base of these two folds. The fetus was then extracted without difficulty.

The woman died three days afterwards of uterine phlebitis. In making a *post mortem* examination, not a trace of any cicatricial band could be found. The vagina was healthy and normal. Around the wounds there was no projection whatever to explain the necessity of making the deep incisions. Nevertheless, it could not be supposed that the practitioner was mistaken, in believing that he felt a very tense double fold projecting into the vagina. The assistant had also examined the vagina before the incision was made, and felt equally convinced, to his astonishment, that such was the case. It was now, however, evident that the phenomenon was a temporary one, and that for its explanation it was necessary to have recourse to the hypothesis of muscular contraction. But where was the portion of muscle that was contracted? It was scarcely possible to conceive that it was a part of the muscular fibres of the vagina, as

in that case the constriction would have been circular, and not from before backwards. Outside the vagina, there is no muscle as yet described that could produce constriction.

Shortly afterwards, another case came under observation, somewhat similar in its character, and which helped to explain somewhat the remarkable features of the previous one. A woman, a multipara, with old ruptured perinæum, complained that at times the act of intercourse was not only painful but impossible, from some constriction a short distance up the passage, although the vagina was, in general, sufficiently capacious. An examination showed at first nothing abnormal; she was desired to squeeze the exploring finger, if possible, and was able to do so with considerable force, relaxing or contracting the vaginal wall at will. On pushing the inquiry still further, it was found that there was a sensitive part a short distance inside the orifice of the vagina, and at the cervix. The slightest touch of these parts produced an effect similar to that called into action by the will.

Gosselin, under the name of Vaginismus superior, in his *Leçons cliniques*, published last year, speaks of a hyperæsthesia of the vaginal *culs-de-sac* without contraction of any kind. In acute vaginitis, from the painful spasmodic contractions of the vagina, a small body is, in some cases, incapable of being passed. As this condition has been denied by some authorities, amongst whom is Guéneau de Mussy, the writer made some careful dissections to see what were the anatomical relations of the muscles surrounding the vagina.

The vagina crosses the superior perineal aponeurosis very obliquely, from below upwards and from before backwards. On measurement of the length of the vaginal walls below this plane, the posterior is about double the length of the interior. The disposition of the muscular fasciculi is very peculiar in the perineal region. The vagina is divided by the superior perineal fascia into two parts, an inferior and a superior. The inferior or perineal portion is rich in muscular fasciculi; the upper part contains but few striated or voluntary fibres. On the lower half of the vagina the muscular fibres, for the extent of about seven centimètres, pass both from before and backwards obliquely towards the rectum, but more especially in the antero-posterior direction. At the point of junction of the posterior surface of the vagina with the anterior wall of the rectum, there is a small triangular space, with its base posteriorly. It is free of any muscular fasciculi, both behind and at the lateral surface of the vagina. The first fasciculi, which are inserted in the anterior surface of the obturator fascia, and in the centre of the aponeurosis, are more considerable than are generally described in anatomical works. They form as it were a trapezoid, nearly triangular, the fibres being spread out fan-shaped over the sides of the rectum, and encompassing the vagina to about the height of four or four and a half centimètres on its posterior margin. The inferior fasciculi do not deserve the name of elevators of the anus, for they really serve to constrict the vaginal orifice, as they are directed obliquely from above downwards, or from before backwards; but it is not so with the superior, which are oblique and represent a constrictor muscle, as described by Cruveilhier. There is another bundle of muscular fibres arising slightly more externally and more posteriorly, of triangular formation. They arise from the inferior surface of the superior aponeurosis, a little below the line of junction of the fascia with the vagina. They

strengthen the vaginal and rectal walls as they pass downwards, spreading out in the form of an elongated fan, whose base is about two centimètres. These fasciculi are exceedingly strong, and are composed of well marked striated fibres, which was verified by M. Damaschino under the microscope. A portion of these fibres lose themselves on the surface of the rectum; others seem to be inserted more distantly.

This curious disposition of the fibres has been never previously described. A contraction of these powerful fasciculi would narrow laterally the middle portion of the vagina, which was the case in the two above-mentioned patients. Their presence explains vaginismus, and their tonic contraction, the narrowing of the vagina in virgins, and in some women up to parturition; they also form the corrugated surface of the vagina.

BERNUTZ ON ESTHIOMÈNE, OR LUPUS OF THE GENITALS.—Dr. Bernutz, in the *Archives de Toxicologie* for July, 1874, states that he has only seen five cases of this disease during twenty-five years' hospital practice. It differs in no respect from the lupus that affects the body generally, but in the anatomical difference of the structure affected. There are two forms,—the erythematous and the tubercular. The former is the more rare, and is characterised by a reddish-violet blush, similar to what is observed in the face. It is always connected with the other variety. It consists of a softening of the cutaneous tubercles, which helps to diagnose it. The latter form is the more common, and is to be observed uniquely on the '*Privates*.' It is seen most characteristically on the mons Veneris, on the external surface of the labia majora, and on the perinæum. Its differential diagnosis, especially the ulcerative form, from two varieties of syphilitic ulcerations, is very difficult. It is the more so, as many affected with this disease have very suspicious antecedents. The chief signs are its dull red tinge, covered with a layer of imperfect epithelium, and finally, its progress; healing on one side, breaking out on the other, in parts oscillating between an ulcerated surface and cicatrices. Neither in syphilides nor in cancrroids is this peculiar feature observable, which in a marked manner distinguishes it from all other affections. He relates a case, occurring lately in a married woman, of a scrofulous history, but with no trace of syphilis. It seemed to result from poor living and bad air. She had given birth to a child a few months before; since that time she had had leucorrhœal discharge. Careful microscopical examinations of portions of the parts affected were made by M. Martin. The papillary vegetations were covered with thick layers of epithelium, more deeply of connective tissue, with an alteration in the lymphatics. There were a few fibrillæ of areolar tissue containing small round embryonic cells. The inner lining of the blood-vessels was formed of swollen epithelial cells containing ovoid and large nuclei. The cellular tissue which formed their base consisted of thin fibrillæ, and of elastic tissue in the form of a network. The most marked peculiarity existed in the lymphatics, which were thick, sometimes spherical, sometimes ovoid or cleft on section. The internal surface had one or two layers of epithelium. The cells of the most external of these two layers contained large ovoid nuclei stained red with carmine. In the innermost layer the cells were irregular, incom-

plete, having nuclei, large, spherical, at times stained by carmine through their whole substance, at others only at their margins. The central canal contained a coagulated material, uniformly coloured of a deep red with carmine. The changes were exactly analogous to those described by M. T. Renaut in the *Archives de Physiologie*, July 1872. The treatment consists in improving the general health, excising certain portions, and applying pledgets of lint dipped in tincture of iodine, and an opiate cerate, so as to exert pressure on the parts.

VALENTA ON BLEEDING TO DEATH OF THE FŒTUS DURING PARTURITION.—Dr. Valenta, of Laibach, relates, in Betz's *Memorabilien*, vol. xix. part 5, a case in which bleeding to death of the fœtus took place during parturition, through a rent in the umbilical vessels, which crossed transversely over the os.

A woman was delivered of her second child at full time. The mother stated that before the labour-pains began the waters ruptured, and from that time, up to the completion of the labour, which was of ten hours' duration, she had a continuous discharge of blood. At no time, however, was the stream observed by the attendants to be of a pumping character. On examining the after-birth, it was found to be about six inches in diameter, situated high up *in utero*. The umbilical vessels were given off from its lower margin; and, before uniting to form the cord they ramified in the surface of the chorion for about four and a half inches. The chord measured sixteen and a half inches. There were four veins passing from the placenta, which soon united to form two venous trunks, one of which, the smaller, arched outwards before uniting with its fellow to form one umbilical vein.

At the point of junction, and at a slight distance from it, were two rents. The two arteries united to form one trunk on piercing the chorion, which immediately gave off a small branch that coursed along with the above mentioned smaller vein. This was also torn across.

This case clearly shows the necessity of carefully examining the placenta of any woman where death of the fœtus has occurred.

VALENTA ON A CASE OF TWINS AT THE EIGHTH MONTH, WITH A PECULIAR RING-SHAPED LOW SITUATION OF THE PLACENTA, WITHOUT HÆMORRHAGE.—Professor Alois Valenta, of Laibach, reports in Betz's *Memorabilien* (vol. xix. part v. 1874) the case of a primipara, aged twenty-eight, who came under his care on November 13, 1871. The case was made out to be one of twins. Pregnancy had been prematurely interfered with at the eighth month, by a severe spasmodic cough, aided by the irritability arising from the great distension; and the patient had pains in the loins indicative of parturition. A head and a breech presented. Distinct labour-pains set in on November 19; but, as little progress had been made at noon the next day, the membranes were ruptured by means of an elastic catheter, and delivery completed. The breech case was delivered first; one child weighed three pounds, and measured fifteen and three-quarter inches long; the other weighed two and three-quarter pounds, and was fifteen and a half inches long. They were considered to be eight months' children, although the mother menstruated last on June 24. The infants died on the third day. There was some *post partum* hæmorrhage, which was arrested by the

injection of ergot *per rectum*, and the woman was discharged on December 9th. The placenta was especially noteworthy. There were two afterbirths, two amnia, and two choria. They were so connected one with another that, to judge from the rent in the membranes, their lower borders closely surrounded the internal os, forming a ring about five or six inches broad. The lower part of the ring corresponded to a rupture of the membranes, which was performed artificially in one only of the sacs, and was about six and a half inches in the transverse diameter. The four membranes formed a septum, dividing it into two nearly equal parts. The diameter measured five and a half inches. The average diameter of the ring, at its upper part, was eight and a half inches. The two ova were enclosed, as it were, by a belt formed of the two placenta, which accounted for the rather unusual occurrence of being able at first to distinguish the presentation of each fœtus with equal facility. There was no hæmorrhage, although the placental sites were so low.

VALENTA ON BIFID VAGINA AS A CAUSE OF IMPEDIMENT TO DELIVERY.—Dr. Valenta, of Laibach, relates in Betz's *Memorabilien*, vol. xix. part 5, the case of a primipara, aged twenty-six, who entered the clinique in labour; on examination, the os was found dilated about the size of a crown, the vagina still firm, and the membranes ruptured. On repeating the examination later on, the vagina felt narrower, and the os so small as to be incapable of admitting the tip of the finger. A closer investigation to account for this strange phenomenon disclosed a 'vagina duplex.'

The septum was very vascular, about four lines thick, and of a structure precisely similar to the vaginal walls; it passed from the surface of the urethra directly backwards, dividing the vagina into two nearly equal parts, the right being the smaller. The finger could be hooked over its upper margin, which was in close proximity with the os, and a finger introduced into the opposite vagina could be made to meet the other above the septum. By means of spatulas, the foetal head could be seen pressing down on the septum with each pain. It was divided with the blunt pointed scissors, care being taken to make the incision nearer to the posterior vaginal wall than to the anterior. There was considerable hæmorrhage from the anterior flap, which was ligatured. The head came rapidly down, completely arresting further hæmorrhage. Not a drop of blood came away after delivery. The ligature was removed on the third day for fear of causing a slough. The woman did perfectly well. Strange to say, on examining the vagina some short time afterwards, the anterior flap was entirely gone, and not a trace was left to show that such a condition had ever existed, whereas the posterior flap formed a firm prominent ridge. The uterus was normal.

W. C. GRIGG, M.D.

REVIEWS.

Bad Wildungen und seine Mineralquellen, mit besonderer Berücksichtigung ihren Heilkräfte bei den Krankheiten der Harnorgane. Von Dr. A. STOECKER. Pp. 34. Hamburg, 1873.

This is a very good account of Wildungen, given by Dr. Stoecker, one of the five or six doctors who practise there during the season. Dr. Stoecke r

having had occasion already to write of earthy waters generally, is able to treat of those of Wildungen in a discriminating way. Wildungen is in the centre of Germany, a two hours' drive from the nearest point on the Cassel railway. It is little known to the English, but presents many recommendations for those who are satisfied with a quiet and fairly comfortable style of life, in a rather picturesque country, with wooded hills and airy uplands. One may live either in the public establishment or in fair hotels.

The great characteristic of its wells, which are cold, is the presence of iron and carbonates of lime, soda, and magnesia, with abundance of carbonic acid. The latter gas is so abundant, that there is no difficulty in supplying what are commonly called steel-baths, which are quite sufficient, although for the present they are only heated by the addition of warm water.

One may have a pure, pleasant, and powerful chalybeate; one may have a weaker chalybeate, containing in the 10,000 parts about ten of carbonate of soda and of magnesia each; or one may have the water which is most used, a chalybeate containing a good deal of carbonate of lime, and a very little magnesia and soda.

As iron-wells, these waters are well suited for anæmic conditions and for great debility, and they have obvious applications in chlorosis, mucous catarrhs, and dyspepsia.

But the fame of Wildungen rests on its efficacy in affections of the urinary organs, vesical catarrh, tendency to stone, and albuminuria. The more alkaline waters find their application when lithic acid is present; the more earthy, when phosphates predominate. The waters differ from those of Vichy and Carlsbad in being cold. They are not so powerful or lowering as those of Vichy; indeed, they are tonic; nor are they depressing and purgative as those of Carlsbad. It seems to be certain that the waters are diuretic, that they sometimes remove albumen from the urine, that they are very useful in chronic cystitis, and some think that they are in some degree lithontriptic. They are largely exported, to the extent of 220,000 bottles and more, for use in urinary affections. The rationale of the action of earthy waters, such as those of Wildungen and of Contrexéville, in cases of this kind, is not very clear. With respect to the presence of so much iron in the waters of Wildungen, it is curious to recollect that old medicine attributed high virtues to iron-waters in calculous affections, when patients used to be sent to Tunbridge Wells and similar places for them.

J. MACPHERSON, M.D.

The Early Cases of a Typhus Outbreak. By T. J. MACLAGAN, M.D. Dundee. 1874.

This is a reprint of an article contributed to the *Edinburgh Medical Journal* by Dr. MacLagan, detailing the history of the origin of an epidemic of typhus fever, which broke out in Dundee in December, 1872. During the previous six months no cases of typhus had been reported in the town; but towards the end of December several cases were reported almost simultaneously from three widely separated districts, and Dr. MacLagan aims at showing how these cases may have originated, not *de novo*, but from infection derived from persons supposed to be suffering from diseases other than typhus, but which in his opinion were actually cases of that fever.

In the locality first affected, he traces the origin of the fever to a woman said to have died of *delirium tremens*, but in reality of typhus; and in the second locality, to three boys, who went through attacks of 'gastric fever,' cases which in all probability were typhus, seeing that the other members of this family afterwards contracted it. In the third locality a solitary case occurred; but no infection could be traced to it.

Dr. MacLagan details minutely the history of the primary cases of the epidemic, with the view of showing how infection may have proceeded from these two localities, and also from a family lately come from Aberdeen (in which town typhus was epidemic), to other parts of the town; and he is of opinion that the history of the origin of this epidemic goes far to show that the *de novo* explanation of the origin of typhus in certain cases is not tenable.

It appears to us that Dr. MacLagan, in attempting to refer the origin of all the primary cases to infection, has gone farther than the facts which he mentions warrant; and although we admit that there were many cases clearly traceable to infection, yet there were others the origin of which, in the absence of more positive proof than that given by Dr. MacLagan, would be explained more in accordance with the facts cited, by putting them down as cases of typhus which had arisen spontaneously.

The exclusively contagious theory of the origin of typhus is opposed by many well-authenticated facts; e.g., the origin of typhus in the Crimea and in Algeria, the histories of which have been given by Dr. Guillemin (see LONDON MEDICAL RECORD, September 23).

The paper, however, being the production of one who has had much experience of the disease of which he treats, is by no means an unimportant contribution to our knowledge of fever. It contains much valuable information on the subject of typhus; and we think it deserves to be read by those who are interested in the origin and spread of epidemic diseases.

ALEX. COLLIE, M.D.

Tropical Debility: A Treatise on the Causes and Treatment of Debility produced by prolonged Residence in the Tropics. By JAMES C. DICKINSON, late of the Bengal Medical Staff.

This little brochure belongs to a kind of medical literature which is unwholesome, and ought to be discouraged. The abiding impression left on our minds after reading it, is an unpleasant suspicion that we have been reading an advertisement.

It consists of thirty-eight small pages, without, so far as we have been able to see, a single original observation. They bristle with foot-notes, referring the reader to the author's 'works' on tropical diseases. Within the narrow compass already indicated, references of this kind occur nine times. The drift of the whole is, 'Come unto me, unto me, James C. Dickinson, ye tropical invalids, if you desire to be healed of your "debility."'

When the attention of the profession is pompously invited to a 'treatise' on any medical subject, they have a right to look for something better than a mere *rechauffé* of what has already been better said by Sir Ranald Martin, and a dozen other writers on tropical medicine.

We are sorry to have to write in such terms of any author; but unless criticism be allowed to become a farce, it is impossible to write of a publication such as this in any other terms. When a practitioner

has anything to say worth saying, let him say it; when he has nothing to say but to repeat what has been already said by others, he had better hold his peace. Publications of this kind may, to a certain extent, serve a particular purpose, but that cannot be the advancement of medical science.

MISCELLANY.

A CONFERENCE ON THE MANAGEMENT OF IDIOTS is to be held in Berlin on November 4, 5, and 6. To it are invited all superintendents of idiot asylums, and other persons interested in the subject.

MM. RICORD and Demarquay, during their stay in St. Petersburg, have been paying a visit to the hut-hospital, placed under the supervision of the ladies of that city. The *Journal de Saint Petersburg* states that these two eminent surgeons greatly admired the organisation and arrangement of the establishment, and were specially interested in the nursing institute attached to the hospital; so much so, that they intend to lay communications on the subject before the Academy of Sciences in Paris.

THE PHYLLOXERA.—In the MEDICAL RECORD for September 23, we gave an account of M. Lichtenstein's discoveries concerning the phylloxera. M. Balbiani, who has been appointed by the Montpellier Academy of Sciences to study the insect, entirely denies M. Lichtenstein's conclusions, and affirms that the phylloxera, found on the kermes oak, is an entirely different species from the one which now infests the vines. The kermes phylloxera has, he says, been described and figured by Geer, Kaltenschbach, and Leuckart.

A STRIKING DIFFERENCE.—Dr. A. Corlieu states in *La France Médicale* for September 30, that he had occasion to search the registers of the parish of Saint Antoine, preserved in the National Library. It was in the Cemetery of the Innocents, in that parish, that the dead bodies from the Hôtel-Dieu were interred; and Dr. Corlieu has ascertained that during the first six months of 1694 the deaths of the hospital amounted to 11,696. In 1873, during the same space of time, the mortality amounted to 770 for 925 beds.

COMPARATIVE ANATOMY OF THE PELVIS.—M. Topinard read a paper at the recent scientific congress at Stockholm on the general proportions of the pelvis in man and the other mammiferous animals. The object of this communication was to establish, by the help of the most careful measurement, the proposition already enunciated by M. Broca, that the contrasting types of the pelvis in man and quadrupeds show transitions in apes; the pelvis of the anthropoids more nearly resembling that of man, whilst that of the American apes bears a closer relation to that of quadrupeds.

AN ORIGINAL INVOCATION.—When in 1837 the late Louis Agassiz pronounced his famous *Discours sur l'ancienne Extension des Glaciers*, at the Congress of the Swiss Society for Natural Sciences at Neuchâtel, he enunciated the theory that Switzerland was formerly entirely covered by a thick layer of ice; a conclusion at which he, in common with other observers, had arrived in consequence of the striated and polished appearance of some of the rocks, and the evident removal of others. This was considered a frightful heresy; the whole assemblage was stupefied, until Leopold von Bach, one of the greatest geologists of the time, rose in much excitement, to denounce the new theory with unsparring severity. He was subsequently shown the striated surfaces near Neuchâtel, but still, not 'convinced against his will,' maintained that these appearances had been produced by students sliding over the rocks, and finished by retiring abruptly from the scene, ejaculating, 'O sancte De Saussure, ora pro nobis.'

TEMPERATURE AT GREAT HEIGHTS.—Professor Wahl, who accompanied Professor Wise in a recent balloon ascent, gives the following account of the temperature experienced. 'The maximum temperature observed was 97° at starting, and this continued at 1,300 feet. At 2,000 feet it was 96°; at 3,800 feet, 85°. The fall went on until, at the greatest altitude attained,—viz., 8,743 feet, the temperature was but 68°. It fell gradually as we descended, but was lower than in the ascent, owing, doubtless, to approaching twilight and the attendant lessening of the sun's power.' Observations were also made with a view to estimate the quantity and quality of any mechanical or other impurities of the atmosphere, but it will require some little time and careful work before any information on this point can be made public.

A NEW USE FOR EGGS.—An American contemporary (the *Boston Journal of Chemistry*) has discovered a surgical application of eggs. It asserts that the white of an egg has proved the most efficacious remedy for burns. Seven or eight successive applications of this substance soothe the pain and effectually exclude the burn from the air. Extraordinary stories are also told of the healing properties of a new oil which is easily made from the yolks of hens' eggs. The eggs are first boiled hard, the yolks are then removed, crushed, and placed over a fire, where they are carefully stirred until the whole substance is just on the point of catching fire, when the oil separates, and may be poured off. It is in general use among the colonists of Southern Russia as a means of curing cuts, bruises, and scratches.

PROFESSIONAL SECRECY.—Two of the most distinguished surgeons of Milan, MM. A. Turati and C. Tamburini, have just been condemned to a fine of fifty francs each for not having given information of a duel which had serious results. The question of professional secrecy was brought forward in the matter; but the law was nevertheless rigorously carried out. In consequence of this decision, Professor Zucchi has demanded that the General Congress at Venice should pass a measure to relieve members of the medical profession from those unpleasant complications which occasionally trammel them in the performance of their professional duties. The Italian medical journals, the *Annali Universali di Medicina*, the *Archivio di Chirurgia* of Naples, and *La Salute* of Genoa, enter into all the details of the affair with great interest.

A JAPANESE MEDICAL JOURNAL.—A bi-monthly medical journal in the Japanese language, entitled *Kiu-Si-I-Setzu*, or *Modern Medical News*, is now published at Yedo. It is published by the Imperial Government, has a guaranteed circulation of one thousand copies, and is edited by Dr. Stuart Eldridge, an American physician connected with the medical staff of five large native hospitals, and who has a number of native students attending his clinical lectures. The first number contains:—1. Lectures on Urethral Stricture, by the Editor (Lecture I.); 2. Surgery without Hæmorrhage (Esmarch's method); 3. Apparatus for Digital Dislocations; 4. Government Inspection of Coal-oil; 5. The Relief of Pain; 6. Necessity for the Education of Midwives in Japan; 7. The Salts of Copper in Cholera; 8. The Nitrite of Amyl, a new remedy for Asthma; 9. Rules for the Administration of Arsenic; 10. Oxide of Zinc in Diarrhoea of Infants; 11. Tinctura Ferri Chloridi in Small-pox; 12. Gelatine Suppositories in Fæcal Accumulation; 13. Treatment of Syphilitic Onychia; 14. Tinctura Ferri Chloridi in *post partum* Hæmorrhage; 15. Ergotine in Hæmorrhage. The variety and freshness of the table of contents show that our Japanese friends now have the opportunity of becoming acquainted with the newest methods and results of European surgical and clinical investigation. Their remarkable power of mental assimilation and imitation will doubtless lead them to avail themselves of this advantage to the benefit both of themselves and of their patients.

CHOLERA STATISTICS.—The *Gazette d'Augsbourg* states that a mass of statistics were collected during the last cholera epidemic at Munich (1873-1874) with a view to the future guidance of those specialists whose task it will be to discover how this scourge is propagated, as well as how to combat and eradicate it. The tables prepared at Munich indicate the streets and localities where the disease broke out, and those which escaped it; the number of cholera cases and deaths which occurred each day, with the period of their duration; also whether the cases occurred during the winter or the summer season. Two distinct outbreaks were noted during this epidemic at Munich, the one lasting from June 26 to November 16, 1873; the other from November 27, 1873 to April 27, 1874, the day when the disease finally disappeared. Munich contains about 400 streets, of which 122 escaped the disorder. Of these latter ninety-three were not drained. The total number of cholera cases amounted to 3,040, of which 1,466 were fatal. The largest number of cases (thirty-nine) were registered on August 11; the largest number of deaths (eighteen) occurred on the fifteenth of the same month. December 8 saw the greatest number of winter attacks; they amounted to fifty-nine, and the same day and January 24 showed the largest death-rate of the period.

THE HAIR AS AN INDICATION OF RACE.—At the recent meeting of the French Association for the Advancement of Science at Lille, a member of the Anthropological section made a communication on the subject of the importance of the difference of the hair as characteristic of different nations. He drew attention to the insufficiency of craniometric characteristics, the great complexity of which does not give any results superior to the characteristics drawn from the skin, the proportions of the limbs, the language, etc., and he submitted to his colleagues a series of postulates, which were strongly contested. M. de Quatrefages especially, justly protested against any classification founded on a single characteristic. It is however, none the less certain that there is a more marked difference between the hair of Chinese, Negroes, Scandinavians, Hottentots, and Americans, than there is in the form of their skulls, and that one glance will suffice to distinguish the hair of a native of Guinea from that of a Papuan or a Malay, whilst the cranial diagnosis will only be at all certain if it rests on an average deduced from numerous examples. Besides this, every anatomical characteristic may serve for a starting-point for the human series, whilst it is incontestable that the hair, whatever may be the value of the order in which it is found, represents one of the most lasting and most persistent features of the human race.

ETHNOLOGICAL RELATIONS OF THE OCCIPITAL BONE. M. Hovelacque has studied the occipital bone, or rather the transverse lines and arcs of that bone, in all the races of man. Taking as the chord of the arch, the diameter comprised between the two postero-lateral fontanelles, he brings two transverse arcs into relation with that chord; the first is described by the curve which, on the exterior, is followed by a line corresponding to the line marked on the anterior surface by the lateral sinuses of the occipital, which both spring from the postero-lateral fontanelles. This arc corresponds to the division of the cerebrum and cerebellum. The second arc, springing from the same extremities, takes its course in a horizontal line, parallel to the visual and condylo-alveolar planes. M. Hovelacque has compared the relation of each of these arcs to the diameter with extraordinary patience, and has obtained results in conformity with craniology in general, whence it would seem to result that a single measurement can determine ethnic classifications analogous to those given by the mass of measurements. Thus he has shown the relation between the Bretons and the Auvergnats, as M. Broca had already done by the nasal indication. Thus, the classification of the Malayan and the Ural-altaic group is confirmed by that cranial measurement, which may be termed the indication of the transverse curvature of the occipital.

HOMINAL versus ANIMAL VACCINATION.—Through the instigation of Dr. Guilbert, a practitioner in Paris, the Prefect of Police addressed a letter to the Academy of Medicine, requesting information as to the advisability of the revaccination of those persons who, in 1870, were vaccinated direct from the cow. This was the year in which there was such a panic in Paris, owing to a severe epidemic of small-pox, that people lost confidence in 'hominal' vaccination, and gave the preference to animal vaccination. At the end of the same year and the beginning of 1871, another epidemic of small-pox broke out, and proved fatal to about 14,000 inhabitants in Paris. This was attributed by M. Guilbert to the inefficiency of animal vaccination as an antidote against small-pox; and it was on this representation of the case that the Academy was called upon to report on the subject. A committee was formed to investigate the matter, and M. Blot, the reporter, stated that inoculation from the cow, when properly performed, is at least equally as efficacious as arm-to-arm vaccination. As regards the superiority of one over the other as a preservative against small-pox, the committee could not then express an opinion; time alone could decide. The reporter, however, remarked that in either case the preservative property was only temporary. This view of the case was supported by M. Depaul. M. Guérin stated that the preservative property of hominal vaccination lasted at least fifteen years, and he asked how it was possible to know whether the immunity produced by animal vaccination lasted as long, as it was only in 1868 and 1869 that this latter mode was introduced. MM. Blot and Depaul retorted that the immunity produced by human vaccination might last ten, five, or only two years. As to the great mortality from small-pox in the epidemic of 1870 and 1871, M. Depaul had shown that, out of the 14,000 deaths, children formed a minor proportion; it was individuals of eighteen to twenty-five or thirty, all of whom had been vaccinated with hominal lymph, that formed the largest proportion. M. Depaul concluded by stating that the accusations brought by M. Guilbert against animal vaccination were unfounded, and reiterated his opinion that animal vaccination rendered as much service as hominal. Nothing, he added, proves that children vaccinated from the cow are more liable to contract small-pox than those inoculated from arm to arm. Here the discussion ended, with MM. Depaul and Guérin and their respective partisans as far as ever from each other.

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The London Medical Record.

WEDNESDAY, OCTOBER 21, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

JOUSSET DE BELLESME ON THE VENOM OF THE SCORPION.

In a recent number of the *Annales des Sciences Naturelles* (tome xix.) Dr. Jousset de Bellesme records at some length researches on the venom of the scorpion. Swammerdam, in the seventeenth century, declared that the sting of the scorpion was only a sheath in which the true poison-dart was concealed; in other words, that it was analogous in structure to the sting of the bee. Redi contradicted this, but could not prove the presence of any orifices for the ejection of the poison. Vallisneri, Leeuwenhoek, Ghedini, and Maupertuis discovered the orifices, and the latter figured them as two in number. In 1699, Melchior Frick asserted that vipers and scorpions were only dangerous from the puncture which they made, no poison being transmitted into the circulation; but this was contradicted, with proof, by Redi. In 1731, Maupertuis again made trial of the question, but, as his researches were contradictory, he 'came to a conclusion, worthy of Aristotle, that scorpions are not at all times venomous.' Neither Amoreux in 1789, Guyon in 1852, nor Blanchard yet more recently, have advanced the subject many more steps by their researches.

Only two kinds of scorpions are found in France. *Scorpio Europæus*, which is only about from 3 to 4 centimètres in length, lives in crevices in buildings; while *Scorpio occitanus*, which is about from 7 to 8 centimètres long, is less common, and is found only in the open country in waste sandy tracts, concealed simply under stones, for it makes no subterranean excavations. As the sting of *Scorpio Europæus* is very frequent, an antidote will accordingly be found in all the druggists' shops, and even in private houses, in Provence, in the shape of *huile de scorpion*, which consists simply of a number of these offending arachnids macerated in olive oil. As the sting is never dangerous, this remedy is found, of course, in all cases singularly effective. With the sting of the larger kind it is very different. The puncture is fearfully painful, so that, according to Ehrenberg, who has experienced it, most serious nervous complications may follow in feeble persons. The point of puncture turns black, the skin becomes tense like a large phlegmon, and then follow rigors, fever, vomitings, hiccough, convulsions, syncope, and muscular tremors.

The poison-apparatus of the scorpion is lodged within the sixth and last caudal segment [probably the homologue of the mesial element, or 'telson,' of the last segment of the tail of a macrourous crustacean, e.g. a lobster, or crawfish.—*Rep.*], which is of a rounded flask-like shape, and terminates in a horny blackish dart, recurved and very sharp.

Within the ampulla are contained two little glandular sacs, communicating by a common duct, which extends into the dart to terminate near its point by two longitudinal slits, which are somewhat difficult to see. It is through these that the venom is injected, by the aid of the contraction of muscular fibres, which invest the glandular saccules. In its natural attitude the tail of the scorpion describes a curve; but when the animal imagines itself to be completely sheltered against all dangers, it rests on one side or on the other, upon the ground. It is by a sudden extension of the tail that the dart, after being first brandished over the head of the scorpion, is launched against the body of the victim; and, however small be the prey, it is never brought to the mouth until it has been pierced by the sting. This is a measure of precaution; and that it is not an inherited instinct, but is probably acquired by bitter experience, the following instance will show. M. de Bellesme gave one day to a captive scorpion, which he had hitherto been feeding upon flies, a spider of the size of a pea. The scorpion, having seized its prey with its chelæ, stung it *en règle*, but, probably owing to some flow of blood, the poison took no effect. The spider, *sicut est mos*, feigned death, and as the scorpion, deceived by this *ruse*, was about to transfer its prey to its mouth, the spider suddenly buried its 'mandibles' in the base of one of the chelæ of the scorpion. The latter stung its victim anew, and, this time with effect, but had scarce time to enjoy its victory before it began to show signs of discomfort, and was afterwards seized with tetanic spasms, from which it did not recover till the following day, when it ate a fly with good appetite. The scorpion always attempts to sting its prey in the thorax, death taking place much more rapidly when this site is luckily hit upon, the rapidity of its access being in the inverse ratio to the size of the victim.

In order to procure as much poison as possible for the sake of experiment, it was found necessary to fix scorpions on metal wicker-work, as milch-cows, so to speak, of poison (*vaches à venin*), and to feed them with flies: their tails being tied up—'a somewhat delicate operation'—in order that, when the poison was required, the terminal ampulla might readily be cut off with a pair of scissors—a rough but the readiest method of collecting. The secretion then having been squeezed into a watch-glass was ready for investigation. This fluid is colourless, transparent, only becoming slightly opaline when the gland has been much in action, but never viscous nor treacherous. It dries rapidly, forming a brilliant varnish on the surface of the glass. It is, like all other poisons, decidedly acid in reaction, and is very soluble in water in all proportions, but is sparingly soluble in alcohol, being probably insoluble in absolute spirit, and is insoluble in ether. Its density is a little greater than that of water. Owing to the difficulty of procuring enough for analysis, its chemical composition must for a long time remain doubtful, though it is probably a colloid substance. Under the microscope it appears as a highly refracting liquid, in which are here and there some epithelial cells and fine granules. The normal quantity of the secretion at a time in the poison-ampulla varies, of course, according to the size of the scorpion, but it is always inconsiderable; an animal seven centimètres in length having about eight milligrammes. The quantity which presents itself at the tip of the sting when the animal is excited is not more than a quarter of the whole contents. The

quantity of eight milligrammes is enough to kill an average-sized dog when inoculated with it, while the amount fatal to an insect is extremely little, as the following experiment will show: To a specimen of *S. occitanus* about three centimètres long, and whose poison-ampulla must have contained only five décimilligrammes of fluid, flies were given, and, as soon as stung, removed. Sixteen died successively in a few seconds, the next four succumbed in twenty seconds, the next two survived some time after the puncture, while, finally, the scorpion would not touch the twenty-third.

M. de Bellesme employed for some of his experiments the little green frog 'Rainette verte,' (*Lilla viridis*), not only because the common frog was scarce, but from the greater vascularity of the skin, absence of pigment, and fineness of the intradigital web in the former. It was established by preliminary experiments that the three following conditions must all be present in order that the puncture of the sting should take proper effect.—1. The orifices of the sting must not be obstructed. 2. Ejaculation of the poison contained in the ampulla must take place. 3. The poison must be fairly inoculated into the tissues of the animal experimented upon. The sting itself was used as the instrument of inoculation, the poison being squeezed out by means of a pair of forceps. Experiments were made upon dogs and pigeons, as well as upon frogs; those made upon the latter being, however, the most satisfactory. At the moment of puncture most severe pain is experienced; then, after the animal (*e.g.* a frog) has tumbled about for a few minutes, a violet-red discoloration is seen to extend from the wounded limb (*e.g.* a hind leg), over the abdomen and back. If then the skin be carefully examined, the capillary network will be seen to be finely injected, the superficial cutaneous vessels being apparently clogged up by coagulated blood; and in the interdigital web, as well as in the tongue, small red spots will be visible. The general sensibility of the body is much increased, the punctured limb is extended, and all attempts to flex it are attended with evidences of pain. The respiratory movements are gradually abolished, the pulsations of the heart become less frequent, and the animal finally dies. A pigeon died in two minutes after the subcutaneous injection of only six décimilligrammes of the poison, while no less than fifty-seven minutes were required for the same dose to take fatal effect in a rainette. Not only were the physiological effects readily visible to the naked eye noted, but the blood was carefully examined after the addition of the poison, both when circulating in the vessels and as a fresh drop placed on a glass slide. The three following points were established. 1. The poison of *Scorpio occitanus* acts directly upon the red corpuscles of the blood in vertebrated animals. 2. The immediate result of its action is to cause the corpuscles which have been in contact with it to lose the property which they possess, under ordinary conditions, of readily gliding one over the other. 3. In losing this property they become agglutinated together, and adherent to corpuscles as yet unaffected, in such wise as to form small masses, which plug the fine capillaries, and thus become a complete obstruction to the circulation. If the quantity of the poison be sufficient to cause a speedy death, this will be brought about through embolism and arrest of the circulation; but if the amount be insufficient, those phenomena will take place which always supervene when some obstacle is introduced

into the circulation, *e.g.* œdema and cellular infiltration, which latter can be better seen in mammals than in batrachians.

[The following words of Baglivi, who wrote at the end of the seventeenth century, in cap. viii. of his Essay upon the Tarantula, have a wonderful significance when read by the light of M. de Bellesme's conclusions. 'Any one may infer from the symptoms that have been so often repeated, that the poison of the Tarantula has a tendency in it to curdle or thicken the blood, and there needs no further evidence of that than the sudden oppression of the pulse, anguish at heart, great difficulty of breathing,' etc.—*Rep.*]

A propos of the dispute between Charas and Redi—'le gentilhomme florentin,' as the former termed him—as to whether the poison of the viper could be swallowed with impunity, M. de Bellesme observes that physiologists, when making experiments upon the action of a poison—be it of the viper or of the scorpion—on the digestive tract, never vary the conditions, and thus always arise at the same result. For, from the difficulty of procuring enough of the poison, a sufficiently large dose is not given; for, after all, it is very probable that the so-called innocuousness depends solely upon a question of quantity.' It is probable, too, that the poison, insignificant in quantity, becomes readily diluted by the gastric secretion, and also by such fluid as it encounters in the stomach, for the energy of action of the poison of the scorpion decreases rapidly when diluted with water, while a dose of strychnine, on the other hand, has the same effect, whether sparingly or copiously diluted with water. The fact, too, established by Claude Bernard, must not be left out of account, that the absorptive power of the digestive tract is much less active than that of cellular tissue. [The mere fact, too, of the poison of the scorpion being 'of a colloid nature,' tends to show that it would not readily dialyse.—*Rep.*]

Unfortunately, from the researches above recorded, no therapeutical conclusions can as yet be deduced. As far as the sting of *Scorpio Europæus* is concerned, the usual time-honoured palliatives may be used; but as regards *S. occitanus*, the rarity of its sting is the only source of comfort, for here such remedies as saliva, 'huile de scorpion,' sal ammoniac, and carbolic acid, are quite useless, seeing that they have no action on the blood-corpuscles affected by the poison, and already launched into the circulation. The restoration to the corpuscles of their lost physical properties is a problem which therapeutics have not yet solved, and the only hope lies in the administration of ammoniacal or alcoholic preparations, if a period of reaction should fortunately supervene.

J. C. GALTON.

ON THE TREATMENT BY MINERAL WATERS OF CHRONIC DISEASES, AND ON THE PRINCIPAL SOURCES ADAPTED TO THE VARIOUS MORBID CONDITIONS. BY M. GUBLER.*

The selection of the mineral waters most appropriate for each pathological case, is undoubtedly one of the most complicated and difficult problems which the physician has to solve. He has to direct and watch their rational application in the numerous

* *Journal de Thérapeutique*, no. 10 et seq.

circumstances under which they prove themselves useful, either by their temperature, by their medical constitution, or by their dynamic force. By their temperature they adjust themselves marvellously to all the processes of thermal hydrotherapy. As mineral waters, varying in the nature of their elements and their mode of combination, in their allotropic conditions and in their latent forces, they are powerful modifiers of the blood crasis, and of nutrition and change of tissue. They are not usually heroic medicines, but just the reverse; they act as it were by insinuation. For the bulk of heroic remedies they substitute dynamic force, for their violence they substitute time, and they display the triumph of minim, I shall not say infinitesimal doses, over the coarse compounds of the pharmacopœia. Perfect types of alternative medicines, they display the advantages, as well as the disadvantages, of that class of remedies. If their effects have often to be waited for, they are wonderfully permanent, whether they are metatrophic or metamorphic. Such qualities render mineral waters especially useful in cases of chronic disease. It is easy to affirm this generally; the difficulty is to pronounce what water is most suited for the particular case. To do this satisfactorily, we must first make out the exact pathology of the case, and then select one of the many claimants for popular favour in such cases.

It is said vaguely, the physician must be guided by the nature of the case. Does that mean its pathological nature, or does it include its etiology? In reality, neither the morbid entity nor its specific cause should influence our determination much. We deceive ourselves, when we think we are obeying the indication of syphilis as a cause, in prescribing mercury; in reality, we are meeting the wants of a special anatomical condition engendered by the virus. This is so true, that in the natural evolution of the case, iodide of potassium becomes more suitable for it than mercury; and that, on the other hand, when a state of the organism resembling that produced by syphilis occurs, mercury and the alkaline iodide render the same benefits as in affections of syphilitic origin. In like manner a physician, when prescribing a mineral water, should not preoccupy himself with syphilis, or gout, or scrofula, considered in the abstract; he has to determine whether the syphilitic, or gouty, or scrofulous patient presents such and such a localisation, such and such a form, such and such a stage of his affection, and such and such a state of constitution and of general health. In short, it is the patient, not the malady, that he should consider.

But some one will say, it is vain to attack a symptom locally, unless you at the same time attack its diathetic cause. Far from me to undervalue the importance of the cause, but it must be recollected that causes may be of various kinds, but that of the causes only one is of importance in the therapeutics of a case. A headache depending on a syphilitic intracranial node can only be cured by causing the absorption of the node; we have no occasion to think of the virus which was its primary cause, we have only to make out the condition of the system, and use the means acknowledged to be efficacious in removing such conditions. Or, take the case of gouty arthritis, we have only to calm the local inflammation, while we endeavour to modify the general morbid condition by trying to remove the excess of lithic acid from the blood. In fine, rational practice consists in attacking directly the apparent effects,

while we endeavour to modify the morbid condition which appears to be their cause.

Applying these principles to certain of the cases which seek relief from mineral waters,—take a cutaneous affection, for instance—it is not enough to think only of the cause, which may be scrofulous, arthritic, or herpetic, but we must especially attend to the local or general affection of the organism, to its acute or chronic condition, to its dry or moist state, to visceral complications, to plethoric or anæmic conditions, which yield the physiological indications.

The physiological indications of chronic maladies, which are ordinarily fulfilled by common pharmaceutical remedies, may be equally so by mineral waters, as my physiological classification of them shows.

In it, we see stimulant treatment represented by the very hot, the gaseous, and the sulphur waters. Sedative treatment comprises the indifferent waters, mucilaginous, acidulated, tepid, or cold. I do not speak of waters which might be used as anæsthetics, those which contain carbonic acid and perhaps those which contain carburetted hydrogen. There are waters which are astringent or styptic, and which may have a tonic and hæmostatic action: there are the acids, the sulphate of iron ones, those containing alum, or iron and copper. Certain undoubtedly diuretic waters are to be found among the indifferent ones, the mixed salines, and those containing nitre. Others are powerfully purgative, the ones with sulphate of soda and magnesia, with chloride of sodium, or with a mixture of the two. There are also dialytic waters; these are the alkaline ones and those containing lithia.

Many mineral waters are excellent remedies for improving the digestion, acting variously as laxatives, as tonics, as stimulants at once and anæsthetics (the gaseous waters), or directly on the stomach as acid, as absorbent, as alkaline and calcareous waters. There are other waters which exercise a marked influence over the blood crasis, and thus sometimes favour, sometimes modify nutrition. Such are the iron and manganese waters, the mixed salines, and specially those whose very mixed composition recalls that of the serum of the blood. They deserve the name of true mineral *lymph*. The iodine and iodo-bromine, the sulphur, the arsenical and the copper ones, are eminently alterative, whether by changing the composition of the blood, the conditions of nutrition, or the constitution of the tissues.

Lastly, we might establish a class of waters, toxic to the lower organisms, and which might be employed as parasitocides, vermifuges, antiputrescents. Such are the sulphur, the hyposulphite, the arsenical, and the bituminous ones.

Mineral waters, it is thus apparent, have varied enough powers to respond to many indications. These powers are further extended by the great variety of ways in which they may be employed. One water is purgative in large doses, and may be tonic when taken in smaller. Another which induces fever when used at its natural heat, is found to be sedative when it has cooled down. Besides this, in many cases the mineral water has, as adjuncts, moral causes, such as arise from elevation of site or from climate. Hence the logical necessity of distinguishing the three following conditions, the complexity of which goes on constantly increasing. 1. The physiological action of a natural mineral water in itself; 2. The effects of the traditional method of treatment; 3. The influence of treatment

at the source, combined with the advantage of hygienic and climatic conditions, usually favourable. In passing in review the morbid affections treated usually with mineral waters, I shall endeavour to follow a rational order, in hope of avoiding repetitions. I shall first speak of general conditions, as weakness, nervous depression, anæmia, obesity, or unnatural leanness; next of scrofula and lymphatism; then of affections of the respiratory organs, and of the genito-urinary organs of both sexes. The affections of the digestive canal, and of its appendages, will follow. And I shall finish with skin-diseases and syphilis, metallic poisoning, brain-affections, and surgical diseases.

1. Treatment of Anæmia.

What I am going to say of anæmia, applies equally to conditions of languor and loss of nervous energy.

In a therapeutic point of view, anæmia may be divided into transitory, persistent, and constitutional.

Transitory anæmia, the consequence of privation of fresh air and light, of inanition, of excessive losses, as hæmorrhages, or of acute illness, may, strictly speaking, do without mineral waters. Rest, nourishment, hygiene, suffice to restore the blood to its natural condition.

In persistent anæmia, kept up by dyspepsia, diarrhoea, or by disturbance of the respiratory or circulating system, or other chronic affections, hygienic treatment by itself is insufficient. The complications or causal affections must be treated; we must order a residence among the mountains or at the sea-side; sea-bathing, and waters that alter the digestion and the circulating fluid. Several kinds of waters serve to alter the constitution of the blood. Thus waters containing salts or chloride of sodium supply neutral salts to the serum; saline waters containing lime bring one of its elements to the osseous system; the most powerful ones of all are the iron waters, and those containing iron and manganese. But all iron waters have by no means the same value, and their value is not to be measured merely by the dose of iron which they contain. In point of efficacy, I divide them into three categories. Lowest are the waters which contain no gas, next come gaseous iron waters, and the first rank is occupied by the perfect waters, which are at once ferro-saline and gaseous.

The non-gaseous iron waters are often rich in iron, but they are apt to lie heavy on the stomach, in the absence of the natural condiment, carbonic acid; nevertheless, they have undoubted restorative powers. They are divided into carbonated crenated iron, and sulphated iron. The last, less numerous and less important, are generally mixed, and act on the blood by their oxide of iron, while the sulphate is more or less astringent.

The chief non-gaseous waters containing carbonate of iron as those of Candé, La Bauche, Aumale, Sainte-Quitterie de Tarascon, Lac Villers, Saint-Dizier, Chateaugontier, Forges, Gournay, Cambo, etc.

The gaseous mineral waters, which taste like champagne, are not only more agreeable, but are lighter, and are usually better borne by the stomach.

The most celebrated spas out of France belong to this class. But nevertheless France is as rich as any other country in Europe in waters of this kind. To Pymont, Griesbach, Schwalbach, and Spa, we can oppose Renlaigue, Vic sur Cére, Prugnes, Arlanc,

and others in the centre of France—and particularly Oreza in Corsica. But it is to be regretted that most of those places are not supplied with sufficient establishments. There is a good establishment at Oreza—and that at Vic sur Cére, situated on the railway in a picturesque part of Cantal, deserves to be more visited than it is.

Among the gaseous iron springs, which emerge on all sides from the flanks of the extinct volcanoes of Auvergne and Vivarais, the chief one is that of Cayla, as gaseous and containing more iron than any of the springs out of France. Next come Cassuéjols, Arlanc, Prugnes, and Andabre, quite equal in mineral contents to Schwalbach. Of these Prugnes and Andabre only have small establishments, but access to them is difficult.

But superior to all the ferro-gaseous waters are the true mineral *lymphs*, containing all the neutral salts of the serum, of which France contains many specimens. Vic en Carladès, Chateaneuf, Renlaigue, Saint-Maurice, Saint-Nectaire, are some of the chief ones. The water of Renlaigue, which is sold in Paris, has yielded me good results, and Saint-Nectaire has cured cases of chlorosis, which had resisted all other treatment.

Simple anæmia and chlorosis may yield to plain carbonate of iron waters, which are scattered everywhere in great abundance. Other things being equal, those waters are to be preferred which contain manganese also, as those of Candé, Casteljaloux, and Luxeuil.

These same affections, when complicated with dyspepsia, and rebellious to ordinary treatment, should be combated with the gaseous waters of Camarès, of Oriol, of Vic sur Cére, and especially of Oreza, and failing these, with the waters of Spa, where the arrangements of the establishment are admirable.

Iron, gaseous, and alkaline waters will be more efficacious than others, in certain states of dyspepsia; for instance, Andabre, Augnat, Montbrison, Neyrac, and the source Mesdames of Vichy.

If necessary, if disturbed digestion be the origin of the morbid state of the blood and of nutrition, one must order waters containing more alkali than iron, such as Boulou, Courpière and Marclos.

When chloroses and anæmias are desperately obstinate, we still have in reserve the mixed saline or chloride of sodium and iron waters, such as Rouzat, Saint-Maurice, Vic sur Cére, Chateau Guyot, Chateaneuf, and Saint-Nectaire.

Certain cases of torpid chlorosis are advantageously modified by the thermality of some of the saline or sulphurous waters. Among these may again be placed the red spring at Saint-Nectaire.

Menorrhagia or hæmorrhagic chlorosis frequently requires aluminous iron waters, that is, sulphate of iron, which is often associated with sulphate of alum. To this category belong Passy, Auteuil, Chemillé, the source Galtier at Cransac, and Dominique, and Saint-Louis at Vals.

Anæmic patients, affected with bronchial catarrh, may profit by iron sulphur waters, as those of the south gallery at Luchon, of Audinac, Aumale, Bagneres de Bigorre, Mondang, and especially the arsenio-sulphurous iron of Sylvanès (Aveyron). This last, so remarkable for its thermality and its complex constitution, is especially to be recommended to anæmic patients with skin affections, who may also profit by weak arsenical waters, such as Hammam-Meskoutine and Luxeuil.

Anæmic patients of gouty habits may profit by the alkaline iron waters, already recommended in dyspepsia.

Finally, impoverishment of blood, allied to lymphatism and scrofula, where there is family predisposition to tuberculosis, or if complicated with albuminuria, specially requires the saline iron waters of the centre of France.

[The translator ventures to say, that M. Gubler takes a too patriotic and too favourable view of the resources of France in iron waters. Some of the places he enumerates have been omitted. But of those he mentions, a great many are scarcely known by name even to Frenchmen. Their powers have not been fairly tested, and their resources are undeveloped. Orezza, the best of them, is unfortunately in Corsica. English could not visit most of these springs with any comfort. They might be moderately comfortable at Saint-Nectaire, Vic sur Cére, Forges; and at Vichy, Luchon, Bagnères de Bigorre would have every comfort. Manganese and arsenic have a good deal of value attributed to them in France, and Luxeuil or Vals have comfortable arrangements].

J. MACPHERSON, M.D.

(To be continued.)

MAJOR ON THE HISTOLOGY OF THE MORBID BRAIN.*

Mr. Major, in a continuation of his series of articles on the histology of the morbid brain, which is especially devoted to the consideration of the conditions presented by the cortical substance in cases known as senile atrophy, says that we know the great cause of disease and destruction in the nerve-cells to be a deficient or vitiated nutritive supply; that in senile atrophy we should expect to find the simplest forms of degenerative changes; that in judging of these changes an impediment is presented by the effects which must be exerted by age upon these parts; that, in a child of about eight months, the nerve-cells throughout the entire depths of the grey matter are found to be almost uniform of size, circular in form, and almost entirely destitute of branches; in the adult, these cells are arranged in numerous rows, and present various forms and intricate connections, while as years advance, and mental strength declines, corresponding alterations may be expected to be found. From a careful comparison of the cells, specially directed to ascertain the relative extent to which they suffer, he is led to think that, in the majority of cases of senile atrophy, it will be found that the large pyramidal cells which form a conspicuous band about midway in the depth of the cortical substance, are those in which degenerative changes are most constantly and distinctly marked. In the small round, or oval cells, structural changes are comparatively rare, though they must exist, as numbers of these cells completely disappear. The atrophic change is chiefly noticed in the frontal and parietal regions, where the large cells are most numerous. The cells at the extremity of the occipital lobe are less affected than in any other portion of the grey matter. The form of disorganisation invariably present is the granular condition of the large cells. The first stage of this

process is that these cells lose their sharply defined and more or less triangular appearance, and acquire a swollen and inflated aspect. The nucleus likewise becomes swollen, larger, and more or less oval. The nucleoli become very distinct, partly because the pigment of the cell is absent, and partly because the nucleoli readily absorb the staining solution. In the next stage a deposit of granules is observed, inside or outside, imparting a yellow or opaque appearance. Masses of these granules may either fill one half the cell, or cause a bulging and deformity at a particular point. Gradually the interior of the cell is completely filled with yellow bodies, as if artificially coloured; then the walls give way and shrink, leaving the nucleus and its nucleoli surrounded by granules. The holes observed in the grey matter are not seen in the healthy subject surrounding the cells as in atrophy. Thus the nucleus proves to be the most persistent part of the cell, surviving long after the latter has disappeared. The granules have been believed to be fatty in nature, but this view is not established. In the first or outer layer of the small nerve-cells, the change is rather that of shrivelling than of degeneration. He has not observed hypertrophy of the nerve-cells in atrophy, but has met with it in general paralysis of the insane, but does not doubt its existence in the former, though exceptional in both. Their branches, supposed to be increased in number, are, by him, regarded as enlargements of those normally present. The confusion in the rows of cells is believed to prove that certain of their number have disappeared. In advanced stages, granules are noticed scattered about in the grey substance which may have a different origin from that of the cell-debris.

Vessels.—Dilatation of both arterioles and capillaries is observed, similar to that in brain-wasting. Great caution is necessary in judging of such changes, as they may be owing to the preparative hardening process. There may be observed deposits of granules of a yellow colour and highly refractive, and crystals of hæmatin on the walls of the smaller vessels. The former are found scattered under the sheath of the vessels, or are collected in masses there, while the hæmatin-crystals are more frequently seen at the angles formed by the bifurcation of the vessels. The perivascular canals in this, as in many other forms of brain-disease, are enlarged, and the surrounding cerebral substance is coarse and indurated.

Fibres.—Loss of the branches of the cell is one of the first stages in atrophy; but the fibres throughout the whole of the grey matter are greatly altered, or even broken up, and their course very twisted and irregular. In this, as in other forms of long continued cerebral disease, they are decidedly coarser.

Neuroglia.—Wasting and atrophy are especially remarked. The fine and retiform aspect is lost, the disruption of structure presenting in the grey substance patches of molecules and nuclei. The nuclei are increased in number and assembled in groups, but without proliferation. In dealing with this almost new field of inquiry, in justice to Mr. Major, his conclusions are quoted in his own words.

‘*A. Cells.*—1. In senile atrophy of the brain the nerve-cells throughout the entire depth of the cortical layer, and in all parts, are morbidly affected, although to a variable extent and in a different manner.

‘2. In the large nerve-cells the morbid process in the great majority of cases is one of granular degeneration.

* ‘Observations on the Histology of the Morbid Brain.’ By Herbert Major, M.B. *West Riding Lunatic Asylum Medical Reports.* 1874.

'3. In the smaller nerve-cells generally, and occasionally also, but rarely, in the large, the process is one of simple atrophy, without granular degeneration, properly so called.

'4. The nuclei of the cells invariably participate in the diseased condition, and become the seats of granular deposits which lead ultimately to their destruction.

'5. At an early period the branches of the large cells are usually atrophied and destroyed to a greater or lesser extent, but exceptionally are retained up to a late period in the degeneration process.

'6. The condition of so-called hypertrophy of the cells (Rutherford, Tukey) depends on a peculiar transformation of some of the large pyramidal bodies, and is not confined to senile atrophy, being also observed in general paralysis, but in both is of exceptional occurrence.

'B. *Vessels*.—1. A condition of dilatation, both in the small vessels and in the capillaries, is that most commonly observed.

'2. Corresponding with this, there is enlargement of vascular canals with induration of the surrounding cerebral substance.

'3. As a rule, no great proliferation of the nuclei of the vessels is observed, the morbid deposits consisting of yellowish granules and hæmatin crystals, and there is no remarkable change in their course and direction.

'C. *Fibres*. 1. The fibres generally are abnormally coarse and tortuous, and in some instances seem to be broken down at various points.

'D. *Neuroglia*. 1. The most prominent change in neuroglia is one of atrophy and degeneration, the substance, at first loose and imperfect, breaking down ultimately into molecular *débris*.

'2. The neuroglia-corpuscles are somewhat increased in number, and, while at first presenting their usual characters, become eventually shrivelled and atrophied.'

Most wisely and cautiously Mr. Major introduces his paper by these warnings. '1. It may, nay more, it will, be found that many of the appearances I shall describe as being present in senile atrophy may be demonstrated with equal certainty and distinctness in other forms of cerebral disease. 2. I was driven to the conclusion, in the present as in previous inquiries, that, while in all cases I was able to discover decided pathological changes, yet, so far as my experience had gone, in none could I put my finger on any one point and mark it out as being constant and distinctive of the affection to the exclusion of all others; and to a great extent, as regards the cortical substance, further experience has only tended to confirm and strengthen this conclusion.' [These words are almost synonymous with those employed by the late Dr. Thomson Dickson. (*The Science and Practice of Medicine in Relation to Mind, etc.*) 'It will be long before we can isolate any set of cells, and say from definite appearances, "These are the cells of madness."'"] Lithographs illustrate the above described microscopical observations.

W. A. F. BROWNE, M.D.

ANATOMY AND PHYSIOLOGY.

ARLOING AND TRIPIER ON RECURRENT SENSIBILITY.—MM. Arloing and Tripier (*Gazette Hebdomadaire*, no. 36, 1874), publish the results of some new researches on recurrent sensibility, and suggest

applications of those results to pathology and operative treatment. The authors had previously sought to interpret the fact of the persistence of sensibility in the integument of the human hand after section of the median, radial and ulnar nerves, and had demonstrated the following points: the existence of recurrent sensibility in cutaneous nerves; the extension of the influence of sensory nerves of the skin beyond their zone of anatomical distribution, and that the persistence of sensibility in the peripheral extremity of the divided nerve, and the persistence of sensibility in the corresponding integument, are always associated phenomena. The exactitude of these data having been verified in the upper and lower extremities, the authors next proceeded to examine whether they were applicable to the nerves of the face. Analogous researches made on the chief branches of the trigeminal gave very variable results. They then commenced a series of experiments based upon the fact that the nerve-tubules are always found intact at the peripheral extremity when sensibility persists, and that, on the other hand, the tubules are degenerated when sensibility cannot be demonstrated. The researches were first made on the facial nerve of soliped animals, the peripheral extremity of which, according to M. Chauveau, is always found insensible, after section has been made below the parotid. Repeated experiments made by MM. Arloing and Tripier gave identical results, and on examination of the peripheral extremity all the nerve-tubules were found to be degenerated. In one case, where the section was made in front of the masseter muscle, compression of the peripheral extremity revealed doubtful sensibility; after a lapse of time, some intact fibres were found here. This result was due, the authors think, to the section having been made nearer the periphery. In order to prove whether this hypothesis was correct they instituted the following experiments. The inferior branch of the facial nerve of a mule having been exposed behind the labial commissure, the nerve was divided and its peripheral extremity isolated over an extent of two centimètres. At the end of two hours the peripheral extremity was again isolated, and when the nerve was more compressed the animal drew back its head and depressed forcibly the lower lip. Subsequent microscopical examination of hardened portions of the divided nerve showed about twelve intact nerve-tubules at the peripheral extremity, and about eight degenerated nerve-tubules at the central extremity. Experiments were next made on different branches of the trigeminal nerve in various animals. The authors assert that sensibility is very evident at the peripheral extremities of the supra-orbital and infra-orbital and the mental nerves of the dog after division. It is less evident in the supra-orbital and infra-orbital branches of the horse and rabbit, but is well marked in the mental nerve of those animals, a fact due to the more considerable number of intact nervous tubules at the peripheral extremity of the last-mentioned nerve.

In applying those experimental data to pathology and operative treatment the authors lay down the following propositions. 1. It being admitted that all nerves possess recurrent nerve-tubules, it may be supposed that special morbid conditions resulting from this anatomical disposition will present themselves equally in all nerves. Thus one may conceive the existence of neuralgiæ of the facial as of the trigeminal (the so-called functional neuralgiæ for

example). 2. Since, speaking generally, the recurrent fibres are the more numerous, the nearer one approaches to the periphery where the anastomoses are more numerous, whilst, as one approaches the main trunks, the fibres diminish in number and finally disappear, there ought to be marked differences in the mode of action, and the manifestations of the morbid agent, according as it affects the trunks or the periphery. The nearer the morbid agent is placed to the periphery, the greater the intensity and diffusion in its mode of action, and in the manifestations to which it will give rise; and on the other hand, the nearer the morbid agent to the trunk of the affected nerve, the less intense will be its mode of action and its manifestations. The authors hold with the majority of pathologists that, except in cases of compression, neuritis is very rare in neuralgia; they believe that it may arise from morbid changes in the proximal portions of nerves, but they do not think that it is absolutely necessary to admit these changes in any degree in order to explain the extension or diffusion of morbid phenomena, an exact notion of which may be formed by taking into account the peripheral anastomoses. The authors conclude that in the treatment of neuralgia the indications and operative proceedings ought to be much modified. Wishing to remain within the region of general considerations, they content themselves with these statements. 1. For motor-nerves or nerves supposed to be motor, the trunks in question ought not to be divided, but rather the neighbouring sensory branches which supply to the former recurrent nervous branches. 2. For sensori-motor or sensory nerves, it is necessary to find out whether the morbid agent affects the trunk or its branches. In the former case, simple neurotomy would suffice to interrupt the transmission of morbid impressions, whilst in the latter recourse should be taken to associated sections, made so as to interrupt the different modes of transmission, and at the same time cause the least possible disorder.

W. JOHNSON SMITH.

ROLLETT ON THE DIFFERENT EXCITABILITY OF FUNCTIONALLY DIFFERENT MUSCLES.—If a limb, with its muscles and nerves, be separated from the body, and fixed in a certain way, it will take a position of equilibrium dependent on the mode of fixation, and the weight and elasticity of the tissues. It will move out of this position, if the common nerve-stem be stimulated at some part of its course, and so the muscles be put in action. The new position of equilibrium will then depend on the action and counteraction of opposed muscles.

It has generally been supposed that the change of position of the limb in such experiments is in the direction of the opposing muscles, which exceed the others in mass. If this were the case, then stimuli of different strength applied to the nerve-stem should be followed by motion of the limb in the same direction; the amplitude only of the motion varying with the strength of the stimulus.

M. Rollett has, however, convinced himself by numerous experiments (*Wiener Akademische Anzeiger*), that this is not the case. He found that, with weak stimulation of the common nerve-stem, the limb was moved in quite a different direction from that obtained with strong stimulation.

This result was first established from three series of experiments (varying little from each other), made with the help of a stimulating apparatus, capable of fine gradations of strength. In a fourth series,

the same result was had for motor nerves still in connexion with the spinal cord, but removed from the influence of the brain and the sensitive nerves. In a fifth series, the fact was proved from a comparison of curves obtained simultaneously from antagonistic muscles, by a double myographion. Lastly, the fact was demonstrated, not with one determinate nerve-muscle apparatus only (muscles, in connection with their nerves, separated from the rest of the body), but with a series of different nerve-muscle apparatuses; for example: the motors of the foot forwards and upwards, and the motors of the foot backwards and downwards; the muscles which separate the toes, and those which bring them together; the muscles which draw the arm to the breast, and those which remove it; the muscles which bend the elbow, and those which straighten it. Of these muscles, the former-named antagonists had always the superiority with weaker stimulation of the common nerve-stem; the latter with stronger.

‘It remains to point out,’ says M. Rollett, ‘how important it is, if evidence is had, that in limb-masses loosed from all central connections, certain muscles of determinate function typically respond to less intensities of the stimulus applied to their common nerve-stem, than other muscles of different function.’

‘This fact must be taken into account in judging of a series of phenomena in which hitherto we have tended to consider exclusively the connection of the nerves with the central organs; for example, the variety of reflex motions following the same local application of a peripheric stimulus, where the strength of the latter is gradually increased, and in which at first the flexor, and later the extensor muscles have the inferiority; cramp after poisoning by strychnine, where the extensors prevail; several other remarkable forms of cramp; lastly, the mechanism of the co-ordinated movements (ordinated to an end), in general.

‘As regards explanation of the phenomenon, it must first be stated, that the muscular apparatus of a limb, after exclusion of the nerves, no longer shows this different behaviour in response to weak and strong stimuli. On symmetrical direct excitation of antagonistic muscles deprived of nerve-influence, the change of position of the limb is always in the direction of the muscles preponderating in mass, if both groups of muscles be kept perfectly capable of action. Thus the explanation of our phenomenon is to be sought in the nerves. We cannot, however, straightway conclude that nerves attached to different muscles have a different excitability. This would only be permissible if all other possibilities of explanation were excluded, or if evidence of an excitability varying in the section of the nerve-stem could be obtained by other metrical experiments. The latter has not hitherto been practicable. On the other hand, we have to consider the different form and number of the connections of different muscles with their motor nerves, and weigh the evidence of the phenomenon of difference in excitability being referable to this anatomical basis.’

ALEX. B. MACDOWALL.

HEYNOLD ON THE CONGLOMERATE GLANDS IN MAN.—Hans Heynold, a student of medicine in Leipzig, gives the results of his examinations of the various conglomerate glands in man (*Archiv für Pathologische Anatomie und Physiologie*, part 1, 1874). After distinguishing the efferent duct from

the coil itself, in common with other authors, he quotes Kölliker, to the effect that the commencement of the former is invariably narrower than the lumen in the coil itself, and continues so to its entrance into the Malpighian layer, where it dilates to about double the size, and, retaining this breadth, it traverses the epidermis. In the corium the sweat-glands always have a distinct cavity, and an external investment of connective tissue, with elongated nuclei, without smooth muscular fibres, and an epithelium of at least two layers of polygonal nucleated cells without pigment-granules, etc. After quoting the descriptions of the glands by Henle, Biesiadecki, Frey, Schrön, and Aufhammer, Heynold describes his own experiments. In order to examine the condition of the excretory duct, he used pieces of skin hardened in either two per cent. of bichromate of ammonia or in Müller's solution and afterwards in alcohol, and partly in one half per cent. of peroxide of osmium. The latter liquid was allowed to act for twenty-four to thirty-six hours, after which the pieces were placed in absolute alcohol. The following are the results of his investigations.

1. All secreting canals of the conglomerate glands are more or less provided with muscles.
2. All secreting canals possess (towards the lumen) a sharply demarcated cylinder-epithelium without cuticle.
3. All excretory ducts are devoid of smooth muscular fibres, and are invested with a cuboid epithelium of several strata, the innermost of which has a distinct cuticle.

As regards the glands of the axilla, the author arrived at the following results.

1. There exist in the axilla two different kinds of glands (axillary glands and sweat-glands).
2. The axillary glands are very large, and show a very strongly developed muscularity.
3. The epithelium of the axillary glands consists of one layer, is cuboid, shows a very broad cuticle, and is coloured brown by osmic acid.
4. The excretory ducts of the axillary glands have an epithelium of sometimes one or more layers, but the innermost stratum always possesses a cuticle. In the first case they sometimes possess muscles and are very wide; in the second case they are mostly narrow and without muscles.

H. A. REEVES.

DISEASES OF CHILDREN.

DESSAN ON THE DIARRHŒA OF CHILDREN.—The following observations by Dr. S. Henry Dessan are contributed to the *Southern Medical Record*. In cases of simple diarrhœa occurring in teething children, where there is no fever, and there is absence of pain on pressure over the abdomen, where the stools are more frequent, thinner and copious than usual, when the cause is presumed to be nothing more than the highly irritable state of the nervous system, the effect of the transitional process of teething, and reflecting its action on the alimentary canal; if the gums should be found swollen, red and tender, they would be lanced; but since my term of service at the dispensary, I have never found occasion to lance a gum. I generally, in such cases, administer a sedative, such as the bromide of potassium, in doses of two to four grains every three hours, and insist upon careful attention to the

diet of the child. If an astringent be found necessary, I give

R. Misturæ cretæ . . . fl. 3j
Tinct. catechu,
Tinct. opii camph. . . aa gtts. iv

every three hours. When the patient has acquired a mixed dietary and presents the same symptoms of simple diarrhœa as before mentioned, the cause being due to eating improper food, if seen shortly after the commencement of the attack,

R. Olei ricini,
Syr. rhei aromatici . . . aa fl. 3ss
Sodæ bicarbonatis . . . grs. ij.—M.

is ordered to be taken every half hour until the bowels have been freely evacuated, and afterwards to be taken twice or three times daily. This mixture is similar to the Chaussier mixture, with the exception of the soda, which is added as an antacid. Stillé, in his work on *Materia Medica*, remarks of castor-oil, that it is peculiarly adapted to the diarrhœas of children from causes as at present under consideration; because, while it impresses the general system very slightly, it has a sensitive influence upon the bowels themselves.

In cases of simple diarrhœa occurring in children who have completed the first dentition, where there appears to be a lack of tone in the digestive organs, and where the stools present the condition of lientery, a tonic of sulphate of quinine and tincture of chloride of iron is given, together with eight to ten grains of pepsin, taken with the food at meal-time. Pepsin is also given in those cases of simple diarrhœa, in growing children, where the stools are large, watery, frothy and of fetid odour.

Where simple diarrhœa is met with in strumous children, I administer the following:—

R. Olei morrhuæ . . . 3iij
Syr. pruni virginianæ,
Liquoris calcis . . . aa 5j.—M.

The lime-water acts as an emulsifier, and the wild cherry renders the oil more tolerant to the stomach, and at the same time serves to disguise its taste. I have always found the oil to be easily digested after continuing its use for several days, and the looseness of the bowels to gradually disappear without further treatment. When change of temperature, commonly termed cold, is the cause of the diarrhœa, by some writers styled intestinal catarrh, the following mixture:

R. Tinct. opii camph. . . gtts. iv
Extracti ipeacacianhæ . . fl. gtt. 4.—M.

given in a teaspoonful of equal parts of syrup and water, is prescribed for infants, and larger doses for older children. The castor-oil mixture answers fully as well in such cases, and is more frequently given than the first-mentioned combination.

I now come to the consideration and treatment of that variety of the intestinal disorders of children that is by far the most frequently met with by the profession, in any portion of America. It is the summer complaint, by some confounded with cholera infantum, but which I, following the able distinction made by our American authorities, Meigs and Pepper, will term entero-colitis, or inflammatory diarrhœa of children.

When this form of diarrhœa presents itself to my notice, appearing in a child undergoing dentition, where the evacuations are frequent and present the familiar green or chopped spinach appearance (which, according to such high authority as Cham-

bers, is due to nothing more nor less than blood which has undergone transformation), and also containing mucus and undigested curd, all more or less certain indications of inflammatory destruction; and when, moreover, during the first days of the complaint, it is attended with marked fever and tenderness upon pressure over the abdomen, and more especially in the region of the iliac fossæ, I at once place the little sufferer upon a genuine antiphlogistic treatment. The following dose is given in a teaspoonful of dill water :

R. Liquoris ammoniæ acetatis, vel
Liquoris potassæ citratis . . . gttss. xx
Tinct. opii camph. gttss. iv.-x
Extracti ipecacuanhæ . . . fl. gtt 1-½

I order the diet to be carefully regulated, the breast to be given not oftener than every three hours, and if there be much vomiting, teaspoonful doses of toast-water containing ice to be given. In cases where vomiting appears as the principal symptom, I am in the habit of giving the following :

R. Hydrarg. chlor. mit. . . . gr. j
Sacchari albi gr. xv.—M.

To be divided into sixteen powders: one to be given every two hours.

When the disease has progressed for several days, until the febrile symptoms have subsided, or where such changes appear in the evacuations as before remarked, following a previous simple diarrhœa, I employ the following powder :

R. Pulveris rhei gr. vj
Pulveris ipecac. comp. . . . grs. x
Sodæ bicarbonatis grs. xij.—M.

To be divided into twelve powders: one to be given every three hours to a child under one year of age.

I also sometimes use the following, for the same age.

R. Vini ipecacuanhæ gttss. ij
Tincturæ calumbæ gttss. xx
Misturæ salinæ 3 ij.—M.

To be given every three hours.

The saline mixture is made by adding lemon-juice in sufficient quantity to neutralise twenty grains of carbonate of potassa dissolved in an ounce of water. (The composition of the prescription is due to Pavy.) In addition to drugs and attention to diet, I generally recommend a hot bath to be given twice daily, and the baby to be wrapped in a blanket, after being dried, so as to invite free perspiration. Plenty of fresh air is advised, which is especially necessary in a large city like New York.

When this variety of diarrhœa presents itself in children over a year old, and in those under that age also where there are streaks of unaltered blood in the stools, I use the following :

R. Bismuthi subnitratiss 3 j
Pulv. ipecac. comp. gr. xx
Pulveris zinziberis grs. iijj.—M.

To be divided into twelve powders: one to be given every three or four hours.

The bismuth also serves to quiet the stomach where there is much irritability present. When the stools contain undigested matter, I give, in addition to the above, eight to ten grains of pepsin three times daily.

Where the disease has lasted for several months, and has assumed all the features of a chronic diarrhœa, whether the patient has completed dentition or not, I give the cod-liver oil mixture before men-

tioned in the proportion of four-and-a-half ounces to half an ounce of syrup of iodide of iron, a teaspoonful of which is to be given three times daily. It acts in the same beautiful and pleasing manner as in the simple diarrhœa of strumous children. Indeed, there is an analogy between the two affections, as in both the mesenteric glands are enlarged, and these, no doubt, are important factors in the chronicity of the disease. I have sometimes advised the raw beef diet to be used in chronic diarrhœa, but it has been more from wishing to vary my practice than from any want of confidence in the cod-liver oil and syrup of the iodide of iron.

BYRD ON CHOLERA INFANTUM.—Dr. Harvey L. Byrd writes as follows in the *Philadelphia Medical Times*. This terrible scourge of infancy and childhood is carrying large numbers of the young and tender ones of this community to their long homes, and such is the extent of its ravages that it might be said with propriety of language to prevail at this time as an epidemic in our midst.

Baltimore, hygienically considered, is probably equal in all, or at least very many, respects to her most favoured sister-cities; but, while this is the case, the hand of the destroyer occasionally falls heavily upon her, and she is then called upon to mourn the loss of those she cannot rescue from the embrace of death. Since the event of summer the mortality has been considerable among infants and children one to three and four years old, but it is chiefly within the last three weeks that our mortuary tables exhibit a fearfully large proportion of death from cholera infantum. Within this period there has been not only a steady but an alarming increase in the death-statistics from this generally intractable and fatal malady. After resorting to the remedies most in vogue in the treatment of summer-complaint, such as calomel in minute and moderately large doses, alone and in combination with Dover's powder, chalk, charcoal, etc., bismuth, magnesia, pepsin, tannic and gallic acids, acetate of lead, alum, nitrate of silver, creasote, pyroligneous acid, laudanum, etc., alone and in various combinations and mixtures with indifferent or unsatisfactory results, even when strict attention was given to diet, fresh air, bathing, stimulants when called for, etc., it was finally decided to adopt a plan of treatment with special reference to an alterative action on the blood; at the same time giving strict attention to the skin with a view to the elimination of the poison, as far as might be, by this organ.

Accordingly, with the leading object in view, namely, an appeal to the blood primarily, sulphite of sodium and aromatic sulphuric acid were prescribed internally, and tepid or cold alkaline baths, according to indications, ordered externally, to which whiskey or brandy was added when required.

One grain of the sulphite, with four drops of paregoric, was given in gum-water every two hours, to a child one year old, and the dose doubled for a child two years old, increasing or lessening it according to age and the anodyne effects of the paregoric, thus :—

R. Sulphite of sodium grs. xvj
Powdered acacia grs. xij
Camphorated tincture of opium . fl 3 j
Water 3ij.—M.

Sig.—One teaspoonful every two hours, to a child one year old, shaking the phial before using. One drop of elixir of vitriol in three spoonfuls of iced water was given, three times a day, to a child one year old;

and the dose was increased one drop for each year, and lessened to one-fourth or one half-drop when below one year of age. A tepid or cold bath, rendered alkaline with an ounce or more of carbonate of sodium, or potassium, or common salt, was used morning and night. In addition to the foregoing remedies, aromatic cataplasms were ordered, and kept applied over the entire stomach and abdomen. Cow's milk and farinaceous articles of food were not allowed, and scraped or finely chopped beef, or lamb, raw or but partially cooked, or essence of beef (to which a small portion of brandy was added when required by the feebleness or prostration of the patient), was used as much as practicable as nourishment. Wine-weigh was allowed freely in the second stage of the disease, when it agreed with the patient. Infants were allowed the mother's milk, or that of a healthy wet-nurse, and fifteen to twenty drops of lime-water three or four times a day when the milk disagreed. This plan of treatment has been pursued for the past two weeks, with complete success. In a small proportion of cases, quinine, in appropriate doses, was also administered when a tendency to periodicity was observed.

RAUTENBURG ON PNEUMONIA IN CHILDHOOD. Dr. Rautenburg, of St. Petersburg, sends a preliminary contribution, upon pneumonia in childhood, to the number of the *Jahrbuch für Kinderheilkunde* for September 18, 1874. In the ensuing numbers he will give the facts which have led him to the following conclusions. 1. The distinction of croupal and catarrhal forms of pneumonia in childhood is justified neither by microscopical nor by macroscopical examinations of the dead body, nor by the course of the disease during life. 2. The designation of lobar pneumonia as croupal, and lobular as catarrhal, must be looked upon as incorrect. 3. We may speak only of greater or smaller pneumonic masses, and not of lobar and lobular pneumonia. 4. Inflammation of the lung essentially consists in a lesion of tissue, not yet sufficiently examined, which leads to the exudation of leucocytes from the blood-vessels into the pulmonary alveoli, and to further metamorphoses of the extravasated corpuscles. 5. The admixture of fibrin with the exudation which occurs in inflammation of the lungs is not essential and characteristic, but must be looked upon as accidental, and determined, not by the form of the inflammation, but by conditions yet unknown to us, perhaps by peculiarities of epidemic, individual, or excitant of the inflammation. 6. The chief stress in the distinction of the forms of pneumonia must be put upon the etiological momentum of it. This plays the chief part in determining the course and consequences of the inflammation of the lung. The pneumonia of children may arise either spontaneously, from changes in the weather, and attacking otherwise healthy subjects, which in children is the less common case, the course of the disease being eminently cyclic, and ending for the most part favourably; or, as a result of other conditions which predispose to tissue changes in the alveoli. These conditions are: progressive bronchial catarrh, blockage of the finer air-tubes by plugs of mucus, foreign bodies, etc., and general debility causing imperfect expansion of the lungs. To the last class belongs pneumonia coming on in chronic diarrhoea, chronic suppuration, etc., and hastening death. Hence two forms of inflammation of the lungs may be distinguished, the genuine and the secondary. Genuine

pneumonia, without being always croupal and lobar, yet answers to these in its violent and cyclic course; secondary pneumonia ranks itself with catarrhal pneumonia in its course, without being identical. This distinction holds good not only in the appearances before and after death, but also in therapeutics; genuine pneumonia requiring an expectant method of treating symptoms, whilst tonic and stimulant means must be employed against the secondary form.

HÜTTENBRENNER ON CATHETERISING THE LARYNX IN CROUP AND DIPHTHERIA.—Dr. And. v. Hüttenbrenner (*Jahrbuch für Kinderheilkunde*, September 18, 1874), after just making mention of Loiseau, and of Bouchut's 'tubage de la glotte,' passes on to criticise the method set forth by Weinlechner (in the same year-book for 1870, p. 69.) The opinions of Hüttenbrenner are thus summed up.

1. Upon the passage of a catheter, or of Weinlechner's pipe, into the larynx, the child may become accidentally asphyxiated. This accident is due either to a great difficulty in passing the tube, when the operator has not the help of two or three people to hold the struggling child; or to separation of false membrane from the glottis, and aspiration of the same into the trachea on the bifurcation of the bronchi. The latter accident has happened twice to the author.

2. Repeated catheterism, upon every recurrent narrowing of the larynx, is harmful; by no means making tracheotomy unnecessary in the long run, and greatly exhausting the child's strength.

3. Wounds of the mucous membrane of the mouth and cheek, by the gag, can hardly be helped. Moreover, the glottidean pipe easily scrapes the larynx; the abrasions bleed at the time, and are covered with false membrane in a few hours.

4. The relief after catheterism does not last more than a few hours, and then the child is left as bad as before.

5. The operator needs the help of several experts, and hence can hardly undertake the operation in private practice, without running great risks.

6. There is only one indication for the use of the laryngeal catheter in croup, and that is, when life is threatened, to gain time for tracheotomy.

SAMUEL GEE, M.D.

GRANGÉ ON THE SYMPTOMS OF TUBERCULISATION IN CHILDREN AND THEIR SEMEIOLOGICAL VALUE.—Dr. J. Grangé (*Thèse de Paris*, abstracted in *Revue des Sciences Médicales*, 1874), has sought to define more clearly than has as yet been done, the exact physiognomy of tuberculous children; as well as the importance of the various symptoms presented in them. Unfortunately tuberculosis shows itself under so many forms, is so common during infancy, and develops itself in so different a manner, according to the parts most directly attacked, that it is difficult to give a connected account of symptoms which differ widely. After describing the signs afforded by examination of the thorax, the respiratory movements, and the dyspnoea, Dr. Grangé proceeds to study the fever of tuberculosis. He points out the marked variations of the thermal curve, according as the inflammatory phenomena advance more or less rapidly; but whatever may be the character of the phthisis, it is thermometrically distinguished by the amplitude of its daily oscillations, and the great difference between the morning and

evening temperatures. On the contrary, tuberculation of the peritoneum causes but a slight increase of temperature; indeed, when it is unattended by complications of an inflammatory nature, the temperature is lowered. In meningeal tuberculosis the temperature is very low at the stage when the phenomena of cerebral depression become manifest. The thermometer may indicate important differential signs in cases where the presence of typhoid fever might be supposed. Dr. Grangé then proceeds to study carefully the symptoms of pain, vomiting, and disturbance of the cutaneous and secretory functions; but as these symptoms differ but slightly from the corresponding disorders from which adult phthisical patients suffer, and as their very diversity is unfavourable for generalisation, there is nothing striking or original in this section of his researches. This treatise contains a useful series of tracings of thermic waves taken from tuberculous children, and a considerable number of notes of cases; among which some, taken with great care, relate to cases of cerebral tuberculosis and tuberculous meningitis.

E. LAWSON.

SURGERY.

SCHNEIDER ON EXTIRPATION OF THE SCAPULA. Dr. R. Schneider, of Königsberg, reports a case (*Berliner Klinische Wochenschrift*, no. 31, 1874), in which the left scapula was extirpated on account of a sarcomatous tumour. The subject was a weakly boy, aged six and a half years. The tumour had been growing for five months, and during the last three months had increased rapidly in size. The whole of the left scapular region was finally occupied by a firm elastic painless growth, closely connected with the bone, but not involving the integument. This growth was of the size of the fist, and internally terminated at the base of the scapula, but passed beyond the external and superior margins of the bone. It occupied the whole of the outer surface of the bone, filling the supraspinous and infraspinous fossæ, and sent out a modulated outgrowth into the axilla. The action of the left arm was much impeded. No swelling of the corresponding lymph-glands could be made out. On account of this, and of the slow growth, and the yielding consistence of the tumour, Dr. Schneider regarded the affection as sarcoma of the scapula. On December 3, 1873, the whole of the diseased bone was excised. The first incision was made along the base of the scapula; the second was commenced at the acromion and carried horizontally along the upper margin of the tumour to the commencement of the first incision. A flap was thus formed, the free apex of which corresponded to the upper and inner angle of the scapula. The portion of tumour which projected beyond the upper margin of the bone was then exposed. The muscles attached to the inner and outer margins of the scapula were next divided. As the acromion, the neck of the scapula, and the acromial part of the clavicle had become involved in the tumour, it was found necessary both to open the shoulder-joint and to remove a portion of the clavicle. The deltoid muscle was cut through at its upper part, and the clavicle exposed and divided at an apparently healthy part. The articular capsule was now exposed, and the long tendon of the biceps muscles, and the tendons of the muscles inserted into the great and small tuberosities, were cut through. The

articular capsule was then completely separated from the margin of the glenoid cavity. The axillary portion of the tumour was dissected out with great care, in order to avoid wounding any of the large vessels of this region. The tendons of the muscles attached to the coracoid process having next been dissected, the separation of the tumour from the side of the thorax was easily effected. The supraspinatus, infraspinatus, and subscapularis muscles were wholly removed. During the operation, the subclavian artery was compressed against the first rib. A spray of carbolic-acid solution was played upon the wound during the operation. The vessels were closed by carbolised catgut, and the dressings were strictly according to Lister's plan. The operation lasted for little more than half an hour, and the hæmorrhage was very slight; consequently there was no subsequent collapse. The boy did well from the sixth day after the operation, and on January 26, 1874, was regarded as cured. At this date the parts about the seat of operation were quite sound; the left shoulder was somewhat more depressed and less rounded than the right. The outer extremity of the clavicle, on which was fixed the head of the humerus, was directed backwards. The left arm was as large as the right. The left arm could not be abducted to any great extent, though by passive movement it could be easily elevated to the horizontal position. The humerus could hardly be moved, either forwards or backwards. The hand could be raised to the mouth and occiput through the free movement of the fore-arm.

On subsequent microscopical examination, the tumour presented the structure of a lymph or granulation sarcoma, which had undoubtedly been developed between the periosteum and the surface of the bone. The main elements were small ovoid cells filled with glistening protoplasm. The basis substance in the intraperiosteal portions of the growth was very delicate and soft, and on the extraperiosteal portions tough and fibrillated. In the course of a few weeks after the operation the disease returned in the left shoulder, near the cicatrix, and at the same time a diffuse, doughy, and painful tumour appeared at the upper part of the right tibia. These growths increased rapidly in size, and the patient's general health became much impaired. On April 20th he succumbed, death having been preceded for some weeks by pain in the back, great prostration, and paralysis of the bladder and lower limbs. At the *post mortem* examination secondary growths were found in the lungs, on the anterior surfaces of the fourth and sixth dorsal vertebrae, and on the posterior surface of the sixth dorsal vertebra. The deposit in the last-mentioned situation had considerably contracted the calibre of the vertebral canal.

Dr. Schneider states that this is the nineteenth reported case of excision of the scapula, with preservation of the upper limb. The whole scapula, with the exception of the coracoid process, was first removed by Von Langenbeck in 1850, and the whole bone, together with a portion of the clavicle, was extirpated by the same surgeon in 1855. The scapula has been removed in two cases on account of caries, once on account of some obscure tumour, three times on account of enchondroma, once on account of an osteo-fibroid growth, and in thirteen cases on account of sarcoma or carcinoma. Of the nineteen subjects of these operations one only died from the immediate effects. Two patients died from pyæmia, and one in consequence of bronchitis. In one case the disease

returned in the wound made in the operation, and the patient speedily died. The remaining patients recovered from the effects of the operation, and were at least temporarily cured. Dr. Schneider holds that the risks are smaller with total than with partial removal of the scapula. The hæmorrhage during the former operation is not very formidable, if the subclavian artery be compressed.

HEIBERG ON A NEW METHOD OF TREATING DANGEROUS SYMPTOMS PRESENTED DURING THE ADMINISTRATION OF CHLOROFORM.—Dr. Jacob Heiberg of Christiania (*Berliner Klinische Wochenschrift*, no. 36, 1874), describes certain manipulations for the relief and removal of disquieting symptoms often presented during the administration of chloroform. These consist especially in noisy and retarded respiration, congestion or pallor of the face, and a small pulse. This condition, frequently met with in hospital practice, is usually treated by forcible separation of the jaws, and by dragging the tongue forwards with large forceps or sharp hooks. To these proceedings the author raises the objections that they interfere with the course of the operation and distract the attention of the surgeon; that the tongue is often wounded by broken or sharp teeth; and thirdly, that the quantity of chloroform used is often necessarily increased, and the subsequent ill effects of the narcosis rendered more intense. The manipulative proceeding, recommended by the author, consists in depressing the lower jaw *in toto*. When the respiration becomes noisy and disturbed, and in all cases where hitherto the teeth have been separated and the tongue pulled forwards, Dr. Heiberg would depress the jaw in the following manner. The chloroformist, standing behind the recumbent patient, places both thumbs on the symphysis of the lower jaw, passes the second segment of the flexed index finger behind the posterior margin of the ascending ramus of the lower jaw on each side so as thus to hold fast the whole bone between both hands, and then with some force drags the jaw directly forwards. The whole jaw may thus be made to glide forwards, so that the lower dental arch stands in front of the upper arch. This proceeding, which may be carried out with special facility in children, is at once followed by deep and perfect respiration. So long as the jaw remains dislocated, so to speak, respiration is unimpeded and quiet, and just the same result is obtained as from traction on the tongue. Dr. Heiberg states that the anatomical reason for this favourable result is not quite clear to him, but he thinks it probable that the epiglottis lying over the rima glottidis may be thus elevated. The following are supposed to be the chief advantages of Dr. Heiberg's proceeding. 1. The operator can do his own work with less disturbance, and the operation can be performed quietly and with more safety. 2. Lesions of the teeth and tongue are thus avoided. 3. Less chloroform is used, the after-effects of the narcosis and the dangers of chloroformisation being thus lessened.

W. JOHNSON SMITH.

CHIENE AND MAUNDER ON SUBCUTANEOUS FRACTURE OF EXOSTOSIS OF THE FEMUR.—In the *Edinburgh Medical Journal* for July, Dr. Chiene, *à propos* of a case under his own care, asks the question, 'Is an exostosis, after it is broken off by violence, ever absorbed?' A boy aged fourteen was brought to Dr. Chiene, in April, 1873, with a hard movable tumour under the muscles of the thigh, above the

inner condyle of the right femur; with a history that it was first known to him twelve months previously, when, after recovery from a blow on the inner side of the knee, which had caused swelling and pain, and some inability to bend the joint, he found a hard lump, which he could move backwards and forwards. When he was first seen by Dr. Chiene, there was an irregular osseous mass, freely movable, of the size and shape of a walnut, under the vastus internus, two inches above the condyle. When moved, it rubbed against an osseous surface on the femur, but the feeling of crepitus, although perfectly distinct, was somewhat modified, as if the opposing surfaces were covered by fibro-cartilaginous material. Soreness after violent exercise or free manipulation of the tumour was the only thing complained of; and Dr. Chiene recommended delay before the removal of the detached exostosis, in the hope that its absorption might follow the cutting off of its principal blood-supply. From this date the tumour gradually lessened; in October the boy could feel nothing; and in April of the present year, with the exception of a slight linear projection an inch in length, on the osseous ridge, leading up from and about two inches above the internal condyle, Dr. Chiene could not distinguish any difference between the limbs. The result of this case suggests to Dr. Chiene the advisability, in the treatment of exostosis, of attempting in the first place to break off the exostosis subcutaneously, by laying hold of it with large forceps, well padded so as to prevent injury of the skin, in the hope that absorption of the tumour will take place in consequence of the loss of blood-supply; and, secondly, that in such a case as his own the surgeon should wait, and not hastily cut down on the tumour to remove it.

The August number of the same journal contains a preliminary notice from Mr. Maunder of a case under his care in the London Hospital. He had in June discussed the possible methods of treatment—subcutaneous fracture, subcutaneous section by chisel and mallet, and by free incision; and on July 8 he was able, under chloroform, to determine that the globular head of the growth was attached by a slender stem to the outside and back of the femur near to the knee-joint. This pedicle was fractured with comparative ease with a large pair of pliers, and with a jerk, the skin being protected with a piece of chamois leather. Some swelling and ecchymosis followed this operation, the result of which is not yet made known.

[Subcutaneous absorption must be a much preferable and infinitely safer method for the removal of exostosis, than that by free incision, an operation bordering often closely on the knee-joint. Accidental fracture of the stem of an exostosis of the femur, when the stem is slender, is not unknown; and it would be well in all such cases to adopt the suggestion of Dr. Chiene, and defer operating, with the hope of ultimate absorption of the tumour. We shall be interested to know the end of Mr. Maunder's case of artificial detachment of the exostosis.—*Rep.*]

HERBERT PAGE.

SYPHILOGRAPHY.

LACOMBE ON HEPATIC SYPHILIS IN THE ADULT. Hepatic syphilis, as M. Lacombe observes (*Progrès Médical*), is at once an old and a new question. It is old in fact, for the medical men who came after the Renaissance attributed to the liver, which played a pro-

minent part in the vital functions, the seat of a disease which exercised so serious an influence over the animal economy; and yet new, since really scientific researches on syphilis only date from about twenty-five years since. Dittich's first memoir only appeared in 1849, and subsequent researches but serve to consolidate and complete the work of the physician of Prague. A considerable number of medical men, however, in France and other countries, have added their stone to the general edifice. Gubler in 1852, Quetelet in 1856, Lecontour and Virchow in 1858, Leudet in 1860, Lancereaux, Cornil, and Ranvier, have brought to light all the variety and capriciousness belonging to the clinical and anatomic-pathological manifestations of this disease. In the anatomical portion of his work, M. Lacombe recognises and describes two principal forms in lesions of the liver, interstitial hepatitis, and gummatous hepatitis, of which he gives the histological description in detail, from the works of MM. Lancereaux, Cornil, Ranvier, and Hayem, afterwards going into an interesting discussion on the unity or duality of the sympathetic lesions of the liver. We know, in fact, that the generality of writers consider interstitial hepatitis and gummatous hepatitis to be of totally different orders; the first they hold to be of a purely inflammatory nature, whilst the second alone is markedly a specific disease. M. Lacombe is of a different opinion, and believes that the anatomical nature of the lesions is identical, all the difference between them arising from the fact that they do not attain to the same degree of evolution. The question is, at what stage of syphilis hepatic lesions appear. It is difficult to solve this question in a general way, for syphilis of the liver is often latent, sometimes is only found out on necropsy, and may last a long time without betraying its existence; whence the difficulty. It does not appear possible to say whether, as some writers think, the diffuse lesions are always primary, and the circumscribed lesions, the gummata, are always consecutive.

In a second and clinical portion of his work, M. Lacombe traces the symptomological history of hepatic syphilis, and includes a number of unreported cases collected by him in the hospitals, or given to him by his colleagues, MM. Rendu, Troisier, Homolle, Raymond, etc. A certain number of these cases gain special value from microscopic examination, generally made by M. Hayem, who even describes a lesion not pointed out before he did so, and which he calls perilymphangitis; the meaning of this term being that the lymphatics have increased in number, and that many of them are dilated and surrounded, as it were, with a ring of connective tissue. The concluding chapters of this valuable monograph relate to the icterus of secondary eruptions. They inquire into the nature of that icterus to which M. Gubler specially drew the attention of the profession in 1853; whether they depend on syphilis, and by what mechanism they are produced. The influence of syphilis on the development of icterus is scarcely to be contested at the present day, for observation has sufficiently proved that that icterus is etiologically connected with syphilitic manifestations. The author passes in review all the opinions hitherto enumerated concerning the mechanism by which it is produced, and takes his stand on that which pronounces that the icterus which is coincident with premature syphilitic eruptions is a simple catarrhal icterus, only differing by its cause from the more ordinary catarrhal icterus.

OBSTETRICS AND GYNÆCOLOGY.

BANDL ON A CASE OF EXTRAUTERINE PREGNANCY.—Dr. Ludwig Bandl reports in the *Wiener Medizinische Wochenschrift* of August 8, a case of extrauterine foetation occurring in the practice of Professor Karl Braun-Fernwald, in which rupture of the ovum took place at an early period of pregnancy, and the embryo arrived at full maturity in the cavity of the abdomen.

According to Hecker and Cauwenberghe, ovarian and tubular pregnancies generally terminate fatally both to mother and foetus about the third or fourth month, through rupture of the ovum. In abdominal pregnancy (extra-uterine) this accident often does not occur until towards the end of gestation. The foetus generally dies forthwith, and it is only in very rare instances that the ovum develops and lives in the abdominal cavity (*graviditas extra-uterina secundaria*). Most gynæcologists are incredulous of this form of foetation. Schröder says that there is no doubt that a foetus in this condition, as it becomes encapsuled by new inflammatory exudations can live but for a short time. Only one similar published case to that now reported has been found by the author (Walter, *Monatsschrift für Geburtskunde*, vol. xviii.). The present one occurred in a woman aged thirty-five, mother of two children. Each previous confinement was natural. She was admitted on Nov. 20, 1871, into the hospital in a wretched condition. She menstruated last at the beginning of April. During the first two months of gestation she was quite well; since then she had been in continual pain, and had become greatly emaciated. On admission the abdomen was distended, resonant over its whole surface, with distinct fluctuation. The foetus could be easily made out, and its heart-sounds heard. *Per vaginam*, the os was found to be as high as the arch of the pubes, and was only reached with difficulty. It was soft and patulous, admitting two phalanges of the forefinger. The foetus could not be felt; but by bimanual examination the body of the uterus was made out to lie in the left side, and in the right iliac fossa, and stretching into the pelvic cavity an elastic swelling. Extra-uterine foetation was diagnosed. The uterine sound was used three days afterwards, and passed four inches to the left. With a delicate movement of the sound towards the right, it was made to pass nine inches, and its point could be easily felt beneath the thin abdominal walls in the neighbourhood of the umbilicus. This passage of the sound made the diagnosis of extra-uterine foetation somewhat doubtful. The sound had either passed into the gravid uterus or into the dilated cavity of an uterus bicornis or duplex, or there might be an intra-uterine pregnancy along with the extra-uterine. Perhaps the uterus had been perforated or the sound had slipped up the Fallopian tube. Although Matthews, Duncan, Veil, and Hildebrand, maintain the possibility of the uterine sound passing into the Fallopian tube, still, judging from experiments on the dead body, Dr. Bandl thinks it scarcely credible. He believes with König, that in all these instances there has really been perforation of the uterine walls. The puerperal uterus is readily perforated by a slight pressure of the sound; and that organ in extra-uterine foetation is in a similar condition. The writer states that he has in several cases perforated the uterus in the dead subject with the sound with-

out using any force, in women who have died during the puerperal state. Alt's experience is the same. Martin reports a case where, some months after parturition, on laying open the abdomen, the point of the sound was found sticking through the walls of the uterus. In the above case it was therefore very probable that the instrument had perforated the uterus.

On November 29 Professor Braun held a consultation with Professors Späth and Professor G. Braun on the case. The sound had failed to give any assistance in ascertaining the nature of the swelling lying to the right in the abdomen; nor did it exclude the idea of an uterine pregnancy, or of a foetus in the right half of an uterus duplex. The body felt in the right iliac region might be either the placenta, a tumour, or an ovarian cyst. The woman having been anæsthetised, the sound again passed the ten inches in the same direction as before. With the hand in the vagina the fore-finger could be passed easily inside the uterus, and the fundus could be easily pressed down from without on the finger. Nowhere could any opening be felt indicating a double uterus. The swelling on the right side from its shape and consistence was believed to be an ovarian cyst, about the size of a foetal head. During the examination two pieces of decidua, each about a square inch in size, came away. The foetus was made out to be about seven pounds in weight. The patient would not submit to any operation. The next day feverish symptoms set in, and on the fourth day she suddenly collapsed and died. A living child weighing eight and a quarter pounds was removed by abdominal section five minutes after death, but it only lived ten minutes. Six to eight pints of fluid escaped at the moment of opening the abdomen, but no portion of foetal membranes could be found.

Dr. Kundrat on the next day made a necropsy. The organs of the head and chest were normal. There were five or six pints of turbid serous fluid in the peritoneal cavity. The omentum was adherent, and the anterior walls and the peritoneum were injected, and covered with a deposit of loose false membrane. On removal of the small intestines the cavity in which the foetus had lain was apparent. The anterior and lateral walls were formed of a thick false membrane, two or three lines thick, covering the abdominal parietes. The posterior and superior walls were formed slightly by the posterior abdominal parietes, but chiefly by the small intestines, which were connected by membranous bands, and by the ascending and descending colon. The inferior wall was made up partly of a tumour, and partly of the various pelvic organs bound together. There were numerous fibrinous bands stretching across from one side of this cavity to the other. The uterus lay to the left; it was five inches long, and close to the orifice of the left Fallopian tube was the spot through which the sound had penetrated. The left ovary was of normal size; the right was reduced one half, and, with the right Fallopian tube, was bound down to a swelling six inches long, five wide, and four thick, lying partly on the right iliac fossa and partly on the pelvis, and united to the posterior abdominal wall by thick false membranes. This tumour contained the placenta. The walls of the tumour consisted of firm strong layers, three or four lines thick. Opposite the uterus there was a small round opening, with a sharp margin about an inch across, through which the cord passed from the placenta to the foetus. It was wound round the uterus and

slightly attached to it. From the opening, brownish-yellow wrinkled foetal membranes, evidently belonging to an earlier stage of pregnancy, bulged out around the umbilical cord. The walls of the tumour in which the placenta was were quite smooth to the touch.

From this condition of things there can be no doubt that the ovum burst at an early period of pregnancy into the peritoneal cavity. The extraordinary part is, that with the exception of continuous pain and gradual emaciation, the woman never had a day's illness. The rupture took place most probably about the third month. The tumour was nourished by branches from the iliac arteries. The distal end of the right Fallopian tube was intimately connected with the tumour. Whether it was a tubar or tubo-abdominal pregnancy could not be distinctly made out.

BAILLY ON UTERINE SOUFFLE AFTER CONFINEMENT.—In instituting researches into this physiological phenomenon, M. Bailly (*Archives de Toxicologie*, 1874), has been actuated by a desire to see what effect the process of involution had on its frequency, its tone, its intensity, its duration, etc.; its practical application may not as yet be apparent, and its importance he in no way wishes to exaggerate.

Frequency.—He made observations upon seventy-eight women, taken promiscuously amongst the patients. A bruit was discoverable sixty-eight times, or in the proportion of 87.1 per cent. Amongst *enceinte* women, M. Depaul found that it existed in about 95 per cent. of the cases examined. It is, therefore, rather less frequent than Depaul thought.

Character.—In the large majority of instances the tone was soft, liquid, and prolonged, not unlike the sound of the syllable *vous*, when spoken slowly by a bass voice; it is always intermittent, and its duration is longer than the pause. The *bruit de diable*, so frequently heard during pregnancy, was not once observed. The *intensity* is about the same as the souffle heard between the fourth and fifth month of pregnancy. Three or four times it was as loud on the morrow of the confinement, as at the end of pregnancy. The larger the uterus, the louder the sound.

The chief difference in the souffle in the *enceinte* woman and the puerperal woman consists in the tone of the latter being of less volume, less lasting, and less strong. The sibilant, musical, and rough notes, often heard in the pregnant woman, are very rare in the other.

The sound is generally heard over the sides or over the lower half of the uterus, rarely over the superior moiety. It predominates on the left side; out of fifty-eight cases it was found of equal intensity on both sides fifteen times, stronger on the right thirteen, and on the left twenty-six times. The position of the uterus did not alter the ratio.

Progress and Termination.—There is an intimate connection between the subsidence of the uterus and the disappearance of the bruit. In the majority of cases it disappears when the uterus is about 11 or 12 centimètres above the symphysis pubis, but in some cases it has been observed to vanish when the womb was 14 or 15 centimètres above the pubes, and to exist when it was 8 to 10 centimètres, and that two or three days after labour.

Duration.—The maximum was in forty-seven women 138 hours; the minimum ten hours, the mean sixty-three hours. Circumstances influencing the

force and duration of the souffle, are the contractions of the uterus, death of the foetus *in utero*, long previously, and profuse hæmorrhage. In two cases of puerperal fever, the sound was heard for two days in spite of the fever. The uterine contraction either enfeebles the sound, rendering it very short and very harsh, or completely arrests it; only once was it found to increase it. The delivery of a macerated child increases the tone; the same is observed *ante partum*. The explanation is, that the death of the foetus lessens the vitality, and as a consequence the tonicity, of the uterus, and increases the disparity of size between the extra-uterine arteries and their interstitial branches. Excessive hæmorrhage is believed to act in the same way.

Anatomical Seat and Approximate Case.—The observations made during the investigation of the *post partum* uterine souffle fully coincide with those of MM. Chauveau and Boudet, and conclusively prove that it has its seat in the arterial uterine system, and that its approximate cause is the passage of the blood from relatively smaller vessels into larger sinuses and vessels. M. Bailly comes to the following conclusions.

1. The expulsion of the child and the secundines does not at once arrest the uterine souffle of pregnancy, but nine out of ten times it exists a variable time after delivery.

2. Its tone is soft, without pulsation, and clearly intermittent. Any other character is very exceptional.

3. The intensity of the souffle gradually diminishes until it entirely disappears. As long as it lasts, it alternates between more or less elongated increase and diminution, of which the exact cause is not very apparent.

4. Its mean duration is between two and three days (sixty-three hours); in rare instances, it is prolonged to the sixth day.

5. The souffle can not have its seat in the vessels situated behind or at the sides of the pelvis, but evidently depends on modifications impressed on the vascular apparatus of the womb by pregnancy, which is conclusively proved by uterine contraction, either enfeebling or completely suppressing it.

PETIT ON MULTIPLE DISJUNCTIONS OF THE BONES OF THE FACE IN A FETUS.—M. Ch. H. Petit (*Le Progrès Médical*, p. 413) relates a case of a presentation with prolapse of an arm and the cord, thrombus of the vulva, and rupture of the uterus.

The medical man who attended the patient stated that the thrombus appeared before making any attempts at delivery. He applied the forceps, but entirely failed after repeated trials to deliver. When admitted into the hospital under M. Chantreuil, she was in a collapsed state; that gentleman replaced the arm, and recommended no further intervention but to stand by and watch until the head came down, which he thought would slowly take place; but should the head not rotate, then he would perform cephalotripsy. The arm again came down, the patient became more and more restless until the pains gradually died away, and she sank ten hours after her admission. M. Chantreuil declined to interfere, as it was useless. The necropsy showed a rupture of the uterus at the right side with the foetus half projecting through it into the abdomen. The foetus was beginning to decompose. The remarkable part was, that the bones of the face and portions of the several bones were completely disarticulated. The

lower jaw-bone was separated at the symphysis. The malar bones were disjoined from the zygomatic processes and from the superior maxillary bones; the latter were separated from each other, and the sutures between the nasal processes and the frontal bone were disjoined. The same was the case with the connections between the vomer and the palate and other bones. Where these separations had taken place the periosteum was torn off; but there was no infiltration or escape of blood in the vicinity of these joints, showing they were *post mortem*, and evidently caused by the force used in the attempts at extraction by the forceps. M. Chantreuil believes that, if the woman had been left to herself, and there had been no attempt at delivery, either by version or forceps, she would have done well. Interference had excited strong uterine contractions, which terminated in rupture of the uterus.

SKENE ON DERANGED MENSTRUATION.—In the *New York Medical Record* (September 1, 1874) Dr. Skene states that a sea-voyage will often produce amenorrhœa, as he believes, from shock to the nervous system. He is constantly in the habit of seeing strong, healthy young emigrant girls, who have always, previously to their voyage across the Atlantic, menstruated most regularly, affected with suppression of the menses; this is especially the case if the catamenial flow come on whilst at sea. In delicate females, care should be taken not to undertake a sea-voyage during the catamenia.

The author relates a very interesting case of amenorrhœa from defective development of the reproductive organs. The person was a lady, thirty-two years old, who died suddenly of apoplexy. The external organs were known to be present during life, but she never menstruated. She became masculine in appearance as she developed into the woman. The mammae were small, like a man's, a beard grew black and heavy, the forehead became bald, and she walked like a man.

The necropsy showed all the reproductive organs present, but rudimentary in form. The ovaries were small, and defective in Graafian follicles, which were entirely absent.

W. C. GRIGG, M.D.

MISCELLANY.

FEMALE SURGICAL PRACTICE.—The *New York Medical Record* of September 1, contains a report of a case of successful operation for recto-vaginal fistula performed on a lady, in which the operator was Dr. Susan Dimock, Resident Physician to the New England Hospital for Women and Children.

THE SOLVENT ACTION OF PAPYA JUICE.—In vol. lxi. (Jan. to June, 1874) of 'Braithwaite's Retrospect of Medicine,' will be found some account of the remarkable solvent action exercised by papya juice on the nitrogenous articles of diet. Dr. G. C. Roy, having found that in India cooks are accustomed to add a few drops of the milky juice of *Carica papya* to tough meat to make it tender, instituted a variety of experiments on the subject. He found, in fact, that the drug has a remarkable disintegrating power upon animal matter, without, however, promoting putrefaction. It may, not impossibly, be a nitrogenous ferment, standing in the same relation to albuminoid bodies as yeast does to starch. The plant does not appear to possess any poisonous properties, and the meat which had been the subject of the author's experiments was repeatedly eaten by a cat without injury.]

DR. G. J. ARKHANGELSKY has just published, in the Russian language, a book of importance to sanitary science, 'Cholera Epidemics in European Russia for fifty years, from 1823 to 1872.' The materials which the author has collected and tabulated did not exist before for the general European public, being stored in official bureaux in the provinces, whence the author had to disinter and arrange them.

ANIMALS AS MOTOR POWERS.—M. Marey has laid before the French Association for the Advancement of Science some interesting observations on the employment of animals as motor powers. He proves by means of a very elaborate instrument that the movement of animated beings as motor powers takes place by jerks, whence result shocks, and consequently a waste of labour. As an illustration of this theory, M. Marey cites the effort necessary to draw a burden behind one. If the necessary force be transmitted by means of a rigid or almost unextensible strap, for instance, of leather, the movement is jerky and more difficult than if it were transmitted by an elastic strap. It would therefore be better to attach horses to the shafts with India-rubber traces. He also gives as an illustration the manner in which boats are always dragged along the towing paths by long ropes. It would be impossible, or at least very distressing, to employ short ones. The length of the rope, which alternately tightens or slackens by slow oscillations, has in this case the same effect as India-rubber.

FEMALE SURGEONS'-ASSISTANTS.—The Russian Society for the Aid of the Sick and Wounded, having considered the insufficiency of the Russian Army Medical Service in time of war, have arrived at the conclusion that it is advisable to supplement the deficiency by the aid of female surgeons'-assistants. They therefore wrote to the university centres, commencing with the University of Dorpat, to ask their aid in organising the proposed body of female surgeons'-assistants. Encouraging replies have been received from Kazan, Simpheropol, Moscow, Kiev, Wilna, and Warsaw. The medical committee of Wilna University declare themselves to be thoroughly disposed to afford every facility for the instruction of female surgeons'-assistants. At the Military Hospital of that city, the house-surgeons have offered to devote some hours daily to the instruction of the women students, and the surgeon whose duty it is to teach the male assistants, has expressed his willingness to occupy himself daily, without any charge, with the theoretical education of the women. The consulting surgeons, on their part, will give up an hour of their time, or even more if required, to the same task.

NARCOTISING HORSES.—We learn from the *Gazette Médicale de Bordeaux* that an eminent veterinary surgeon has informed the Medical and Surgical Society of that city that the coachmen of certain families had been for some time in the habit of administering chloral to the horses in their charge, so as to make them easier to ride or drive. It appears that the drug acted like a charm, for horses which had previously been so spirited as to give much trouble to their drivers, became as quiet as lambs after a few days of this hyposthenic treatment. This great change naturally attracted the attention of the owners of the animals, and they sent for the veterinary surgeon to ascertain the cause of this sudden gentleness. That functionary noticed a certain tendency to sleep in the animals; but scarcely knew to what to refer this unusual condition, when in one of his visits he chanced to find a bottle half full of chloral. Here, then, was the *corpus delicti*, and when the veterinary surgeon questioned the delinquent coachman as to the use he made of the drug, the latter, after much hesitation, owned that, following the advice of a brother whip, he gave his horses a dose of chloral every morning to make them go quietly, and further, that many of the fraternity in Bordeaux followed the same plan.

THE SURGERY OF THE STONE AGE.—At the recent prehistoric congress at Stockholm, Dr. Prunières laid before his colleagues the results of a series of minute researches on the artificial perforations of the cranium and the cranial amulets of the neolithic period. The communication was accompanied by a numerous collection of crania, showing regular preparations of a circular form, varying from the size of half-crown to five-shilling pieces. A large quantity of circular pieces of bone were also found at the side of the skulls. All these perforations were made with flints; some on the living subject, the others *post mortem*. The first kind showed a process of cicatrisation, which generally indicated a duration of several years. In one case M. Broca judged from the condition of the bony plate which was attacked by osteitis, that the patient had succumbed less than a year after operation; but this was an unique instance. The perforations were situated on different points of the cranium, on the parietal and occipital bones, the forehead, etc., which seems to exclude the idea of a religious rite. They were performed on children as well as adults, and according to Dr. Prunières, this trephining seems to have been performed with a medical purpose, to give issue to a real or imaginary disease. The surgeons who operated with flint instruments scraped the bone layer by layer until they came to the dura-mater. On the dead body many circular pieces of bones were removed from persons who had already been trephined and cured. These pieces, instead of being scraped, have generally been sawn; and it is found that a certain number of concave pieces have been removed from the edges of the original trephining. Finally, it has been observed that fragments of bone have been replaced on the crania from which the small circlets have been removed, before interment; doubtless to allow the deceased to make his appearance in a complete state in the next world. MM. Prunières and Broca believe that they can see in this practice the most ancient material proof of belief in another world. M. Prunières is disposed to believe that trephining was only performed on the insane and on epileptics—the *friends of the gods*, according to old beliefs—and that the bony fragments removed were held sacred and used as amulets.

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The London Medical Record.

WEDNESDAY, OCTOBER 28, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON THE TREATMENT BY MINERAL WATERS OF CHRONIC DISEASES, AND ON THE PRINCIPAL SOURCES ADAPTED TO THE VARIOUS MORBID CONDITIONS. BY M. GUBLER.*

(Continued from page 661.)

II. Treatment of Obesity and of Excessive Leanness.

Mineral waters have chiefly been used in the first of these conditions. The second of them has been less treated with them, no doubt because it was considered only a symptom of a morbid condition, which disappeared when that condition was removed; but the absence as well as the excess of adipose tissue constitutes sometimes an independent morbid condition, requiring special treatment.

The sedative action of a mild and humid atmosphere is favourable to the return of *embonpoint*. On this account, I recommend the climate of Pau and of the basin of the Adour. Prolonged tepid baths in indifferent waters, such as those of Neris, Bagnères de Bigorre, Ussat, Aix-en-Provence, are likely to produce good effects. One may equally use the eupeptic, blood-making or nourishing waters of primitive and volcanic lands—and perhaps the copper and mineral waters for their metamorphic powers. Who knows that the copper waters of Bagnères de Bigorre, of Balaruc, and of Saint-Christau, may not some day be the great restorers of rounded outlines to the spare forms of the fair sex?

For a long time foreign baths have had a monopoly of the treatment of fat and overgrown people. The cure by emaciation is tried at Driburg, at Ems, and Kissingen, and especially at Marienbad.

The alterative and purgative action of such waters is assisted by spare diet and violent exercise and sweating. Nothing should be easier than to produce similar effects in France, with some of the purgative waters—for instance, at Brides, at Neris, at Santenay, at Montmirail, or at Mont Dore, at Chatel Guyon, Saint-Maurice, and Saint-Nectaire. Many of these places are situated in an agreeable and picturesque country and have sufficient establishments.

[M. Gubler is not entirely *au fait*, when he talks of German waters. Surely the iron waters of Driburg are not attenuating. What he says about copper and arsenical waters is purely conjectural. Neris and Mont Dore have excellent establishments; Aix-en-Provence, Chatel Guyon, and Saint-Nectaire, milder ones.—*Trans.*]

III. Treatment of Lymphatism and of Scrofula.

I conform to usage in associating those two terms. Nevertheless, I by no means admit that scrofula is

the highest expression of the lymphatic temperament, for it may manifest itself in those who have none of the signs of the regular lymphatic temperament. Scrofula attacks all temperaments; but, as its most common lesions affect the different divisions of the lymphatic system, vessels, plexuses, and glands, we may be allowed to study them at the same time as the modifications of this system, which may act as predisposing causes. Dry and tonic climates suit the predominance of the lymphatic temperament, so also sea air and baths, and restorative and stimulating waters—also iron ones, and those of chloride of sodium, even sulphurous ones; in fact, all those complex waters which contain all the salts necessary for the serum and the blood-corpuscles.

France contains a long series of excellent sea-side places which have well arranged establishments, and have often a large concourse of visitors, along the shores of La Manche, the Atlantic, and the Mediterranean. They are so well distributed, that we may have sea-baths the whole year through. Some foreigners bathe all through the winter at Cannes, Nice, and Mentone; and I only wish their example was followed by more patients.

Sandy shores and dunes of sand, in which they may take dry and hot baths, suit particularly well strumous patients. Arenation, along with sea-air, modifies profoundly the lymphatic and scrofulous constitution. It is always an useful supplement to sea-bathing. For very young children one selects creeks, where the water is shallow, and the waves are weak.

The combination of these favourable circumstances may be found in a great number of stations, from which one must select the nearest one, that has a favourable climate for the particular season. In summer, the coasts of La Manche or Bretagne; in spring and autumn, those of Arcachon and the Gulf of Gascony; in winter the baths of Montpellier, Cette, La Ciotat, Cannes, Nice, etc.

Such are the general indications for the treatment of the scrofulous; but there are also some special ones with reference to the varied manifestations of the diathesis.

Scrofula produces cutaneous, glandular, osseous, and visceral lesions, all of which have to be taken into consideration; but in my opinion the most important point in practice is, whether these lesions are so situated that the mineral waters can be actually applied to them. An osseous lesion may be so situated, as to make such treatment possible of application at one time and not at another.

External scrofulous lesions, enlargements of glands, periostitis, and superficial inflammation of bone are exactly suited for sea-baths or strong salt-springs, whose action is the more powerful in proportion to the solution of continuity that may be present. Subjects suffering from cutaneous ulcerations, from sinuses and fistulæ, the result of the supuration of glands or of bone, are the cases that profit most by a course of salt waters. But, as in such cases the action is nearly proportionate to the strength of the water, the stronger ones are to be preferred. On this account, Salies de Bearn, because it contains 260 grammes and more of salt in the litre, is to be preferred to all waters, foreign or French. Far behind it come Salies (Haute Garonne), Salins (Jura), Salins Moutiers (Savoy), then Uriage, Balaruc, and Bourbonne, Lamotte, etc. The topical action of salt waters is increased, by strengthening them with the addition of the mother or concentrated liquid.

* *Journal de Thérapeutique*, no. 10 et seq.

However, the density of the saline solution is often not the sole point of importance—its warm temperature may be equally important. Salins (Savoy) possesses the quality of warmth along with a mineralisation superior to that of Kreuznach, whose not very powerful water by no means deserves the great reputation it has, even amongst us. The piscinas of Moutiers, fed by a powerful thermal water that is always running through, are particularly well suited for young children, who may swim in them; while the richer springs of Salies are better suited for older subjects, who are less active, or are perhaps not able to move owing to strumous affections, or old ulcers, and fistulous passages, which cannot be healed without very strong local stimulation.

Deep-seated scrofulous lesions require the internal use of waters capable of altering the nutrition. Here the strong salt-springs fail us, for we can only drink them in very small quantity without causing irritation and diarrhoea. Waters not so strong, especially if they contain carbonic acid, are to be used. Such are those of Saint-Nectaire, and similar ones in Auvergne, which one can drink in glassfuls, which is impossible with the strong water of Salies, or even the weaker one of Salins (Jura). The water of Salins Moutiers is to be preferred, because it is slightly gaseous; also on account of its warmth, which aids its absorption by the stomach. These two favourable conditions are fulfilled in one of the springs of Nauheim, a bath the richest in salt-wells in Europe. Warmth of waters is also useful, in stimulating by its baths torpid constitutions, and no doubt the success of sulphur-baths is mainly to be attributed to the activity which heat imparts to the cutaneous functions. Nevertheless, Aix, Barèges, Luchon, and the crowd of other Pyrenean stations owe something to the alterative action of their mineral constituents.

The waters of Uriage, unfortunately only tepid, have the advantage of having a little sulphur associated with a large proportion of neutral salts and chloride of sodium. But those of Gréoulx, which possess a high temperature, appear to me to be suited for all the requirements of hot hydrotherapy, and by their very complex constitution seem called to do great service to scrofula, especially in its torpid forms.

Glandular, osseous, and visceral scrofula, in which inflammation, or a general condition of erethism is present, especially if there be any ulceration, will do best with sea-water, or Salies de Bearn, Salins de Jura, or Salins de Savoy; or, in the absence of erethism, will do well with the waters of central France, or in some complex cases with Bourboule, owing to its arsenical water.

[It is by some slip that M. Gubler talks of the sea-baths of Montpellier. His wish to bring forward Salies de Bearn is very natural, but for the present France is far behind Germany in salt-springs of all kinds, especially in the knowledge of how to use them. Salies is not stronger than Halle in Austria, strong though it is. Uriage and many of the baths mentioned are pleasant places. Royat is a more comfortable place than Saint-Nectaire: its waters are similar, but less powerful. Both of them deserve the notice of the English.—*Trans.*]

IV. *Treatment of Tuberculosis.*

In chronological order, tuberculosis comes next after scrofula. These two affections, manifestations of the same diathesis, are often identical in form, while they may differ in seat. The same treatment

is applicable to both, with some modifications, having regard to the seat of the lesions, the importance of the organs implicated, and the degree of constitutional disturbance. The tubercular diathesis prefers less powerful waters, and requires less active balneological proceedings, and, indeed, sometimes an extreme reserve in the employment of external measures, and prudence in the internal use of waters.

Medicine cannot, of course, do anything for the tubercular diathesis, but it may modify many disturbances of the circulatory nervous or nutrient systems arising out of it. Firstly, supposing tuberculosis to be suspected rather than proved to exist, that the symptoms are undefined, that no febrile disturbance has manifested itself, that only the digestion is impaired, the strength is falling off, and the nutrition failing; in such a case one orders carbonated saline and even iron waters, especially those of Royat. Many other waters of the same class in the centre of France would render the same services, but their establishments, where there are any, are deficient in comfort. I count the water of Royat to be real mineral lymph; but there are others more powerful, especially in containing more iron, which have been already cited in the treatment of anæmia, which, in the absence of any febrile excitement, are still better for bracing the drooping constitution.

In the second place, if the pulmonary affection be well marked, and its course rapid, and attended with fever, there is no use in thinking of any mineral water-cure.

If, after having been galloping, the disease abate its pace, still preserving a tendency to inflammation from time to time, or if in the course of torpid tuberculosis acute symptoms, such as secondary pneumonia or pulmonary hæmorrhage, occur, in such cases one must wait for the remissions, and then prescribe only some waters destitute of any irritating property. The type of these inoffensive and soothing waters is to be found in the thermal sources of Mont Dore, with their minute quantity of chloride of sodium and carbonate of soda, and even of arsenic. Only the routine cure of the place must not be followed. Violently hot baths and inhalations of heated vapours must give way to milder modes of treatment, more in harmony with the feeble constitution of tubercular patients. I begged in 1872 that the drinking should be made more important, and the bathing less violent, and I think that some change has taken place; Royat, whose water is more mineralised, is, like Mont Dore, suited for tuberculosis with erethism, and has now for some years received many such patients. These two stations, which are analogous to Chateaufort, Rouzat, Saint-Myon, and Saint-Maurice, occupy the same place in France, as Ems does in Germany, and they are superior to it in elevation and consequent sanitary conditions. Bourboule, remarkable for its complex saline waters, and for the unusual quantity of arsenic which they contain, ought to operate in these cases like Mont Dore and Royat. But I believe that the Bourboule waters are especially efficacious like the different springs just mentioned, and Saint-Nectaire, in lymphatic and strumous subjects with torpid phthisis and circumscribed caseous deposits. They contain a greater variety of salts, and they can do more for the patient than the chloride of sodium waters of Soden, which have obtained a certain vogue in Germany in phthisis.

Thirdly, if the symptoms of tubercular affection be undoubted, but the pulmonary lesions proceed

slowly, without causing much reaction, for this form, which is usually accompanied with more or less bronchial catarrh, the sulphur-waters usually recommended are suitable.

Nevertheless, the waters containing sulphide of soda or of lime are not absolutely excluded in the case of subjects who have had spitting of blood, and who have evening febrile exacerbations. It is only necessary to guard against their stimulant effects. No doubt a hæmoptysis, if not spontaneous, has nothing very formidable in it, but it should be avoided if possible. In this we shall almost always succeed, by giving small doses of the water to drink, and by not employing baths; sparing the patient the great heat of the baths, and of the inhalation rooms. If, in spite of these precautions, hæmorrhage take place, it is probably owing to other circumstances than the use of the water. Bordeu justly called these waters the mildest of all pectorals. I think that it is on their alterative effects that we have chiefly to count. But their intimate operation on the parenchyma will take place most satisfactorily when the water is administered so gently that it can excite no revolt of the system.

But whatever may be the physiological operation, by which sulphur-waters ameliorate the condition of tuberculous sufferers, the fact that they do so is incontestable, and every day experience confirms that of centuries. Generally speaking, the warm soda sulphur-waters are superior to the cold lime sulphur-ones. Almost any of the Pyrenean waters might be utilised for pulmonary complaints. But, on the whole, the more fixed waters with a sufficient amount of mineralisation, and of a temperature that will allow them to be drunk as they issue from the source, are the ones to be preferred. Thus the more alkaline waters of the Eastern Pyrenees are somewhat more sedative, and are more suitable than those of the central chain, when there is a tendency to vascular erethism. Among such stations, Vernet and Amélie are suited for winter cures, and next, the feebler sources of Luchon, Cauterets, and especially Eaux-Bonnes. The La Raillère spring at Cauterets enjoys much repute in chronic affections of the pharynx and larynx; but these, as well as bronchial and other pulmonary affections, derive just as much benefit from Eaux-Bonnes, which is more crowded than ever with patients of this class. The waters of Eaux-Bonnes are distinguished from others, in containing small amounts both of chloride of sodium and of sulphide of calcium, forming thus a sort of transition between the waters, which contain these two kinds of salts separately.

Among the calcium sulphur-waters many stations deserve their high reputation in tuberculosis, as Enghien, Pierrefonds, Cambo, Guagno, Challes, Marlioz, Allevard, Saint-Honoré, and others, in France, and Schinznach, in Switzerland. Most of these places are provided with good establishments, and the arrangements for pulverising the water and the inhaling rooms appear to me to be particularly good at Allevard, Marlioz, and Saint-Honoré. Thus, by the aid of art, the lime sulphur-waters prove themselves useful in cases of tuberculosis requiring soothing. The topical application of the sulphuretted hydrogen acts as a sedative, while the portion of it which enters by the stomach exercises its alterative action on the circulation. Challes is the strongest of all the sulphur-waters, and contains also a certain amount of iodine.

But Gréoulx is distinguished from all other

stations by the happy association of sulphur and of iodine with a considerable dose of chloride of sodium; this, joined to the abundance of its waters, and their high temperature, and the southern climate of the place, assures it a high place for the future. To sum up, if a phthisical patient come to me for directions as to a mineral water, my first thought is to send him to thermal soda sulphur-waters, Bonnes and Cauterets in summer, Amélie or Vernet in winter.

It is only where there is much erethism, or a recent hæmoptysis, that we have to think of some sedative waters. Then it will usually be sufficient to let the storm blow over, and send the patients to some of the less exciting waters, recommending inhalations at Enghien, Pierrefonds, Saint-Honoré, Marlioz, or Allevard.

But if the case be very pressing, the patient should be sent to Royat, Mont Dore, or Chateaufort. If there be scrofula with erethism, Bourboule is to be advised. On the contrary, if the form of the disease be scrofulous with torpor, Gréoulx is to be preferred.

In fine, if there be merely threatening of tuberculosis, based on anæmia or lymphatism, some of the restoring and alterative waters, such as La Bourboule, Royat, and Saint-Nectaire, will be found to be of most service.

V. Chronic Inflammation of the Respiratory Organs, Asthma, and Pulmonary Emphysema.

The waters useful in tubercular cases are equally so in these affections. In general, chronic laryngitis with or without granulations, chronic bronchitis, with mucous or muco-purulent expectoration, require sulphur-waters, soda or calcium ones. They are not to be employed in the acute stages. But in the transition between the acute and chronic, the only waters which are innocent, and at the same time efficacious, are those which combine more or less alkali with chloride of sodium. The lighter waters of Vals and those of Soultz are often useful. The source Puits Chomel at Vichy formerly had some name in such cases, and I have often seen the effects of thoracic inflammation removed by Royat, Mont Dore, and analogous waters.

But if the affection be chronic, and there be no inflammatory action, then the indication is absolute. The sulphur-waters of Bonnes, Cauterets, Amélie, Le Vernet, Luchon, Aix, or Enghien, Pierrefonds, Saint-Honoré, Allevard, Gréoulx, or of Schinznach, are to be ordered.

With a tendency to lymphatism or obesity, and especially if there be any tendency to cutaneous affection, we may advise Uriage, Saint-Gervais, and sometimes the at once purgative and sulphur waters of Vaqueyras-Montmirail. If the bronchial catarrh be inconsiderable, if the chief indication be derived from pulmonary emphysema, and the nervous condition which constitutes the asthmatic state, then Mont Dore is usually to be preferred, especially in patients of a gouty, arthritic, or dyspeptic tendency.

We should, on the contrary, have recourse to the sulphur-waters if the pulmonary disturbance be dependent on a strumous habit.

[Here, again, Gubler purposely overlooks the German waters. He only mentions Ems and Soden. Germany has, unfortunately, no mineral waters for tubercular patients that enjoy as good a climate as the South of France; nor, with perhaps some exception in favour of Silesia, has it any elevated spots,

like Mont Dore or the Pyrenees. Still Weilbach, Lippspringe, Neuenahr, Bilin, and some other waters should have been mentioned. Many of the places mentioned by M. Gubler have comfortable establishments. That at Challes is quite new; its waters are undoubtedly remarkable ones, but their effects are but partially known. I can speak of most of these French places from personal inspection. I found Amélie-les-Bains quite comfortable in winter, but not a very cheerful place. M. Gubler seems to have unbounded faith in his waters. The question always remains, how far it is a southern climate, and mountain air, and the simple moist air of the inhaling rooms, that do good, or the infinitesimal doses of sulphuretted hydrogen, or of chloride of sodium, or of salts of calcium. But the main question is, do patients benefit as much as M. Gubler represents? I observe, that in certain cases of premonitory symptoms of phthisis, M. Gubler orders iron waters. They were in former days the ones most in use in such cases.—*Tr.*]

J. MACPHERSON, M.D.

(To be continued.)

CHARPENTIER ON HÆMORRHAGE FROM PLACENTA PRÆVIA.

Dr. Charpentier, in lectures published in the *Archives de Tocologie* for June, July, and September, treats of placenta prævia: its mechanism, progress, diagnosis, pathological anatomy, and treatment.

Mechanism.—The author gives a brief review of the various theories that have been propounded to explain the cause of the loss of blood, from the earliest date to the present time. Portal and Giffard believed it to arise from the opening up of the cervix, and a consequent laceration of the veins which, from the insertion of the placenta, were in contact with this organ. It was only from M. Levret's time that a rational and true theory of this accident began. The neck of the uterus, said this author, becomes the point of insertion of the placenta, and during the last months of gestation takes part in the development of the uterine cavity; the placenta is stretched and detached; hence the hæmorrhage, the moment the labour begins, consequent on the opening up and dilatation of the cervix. The more completely the placenta covers the os, the greater is the loss of blood. This theory was universally adopted by the English and German accoucheurs, as well as by the French; but it did not satisfactorily explain all the cases of hæmorrhage during the latter months of gestation and before labour set in. M. Stolz demonstrated, contrary to the then received theory, that the cervix did not participate in the changes in the uterus until within the last few weeks of pregnancy; often, indeed, not until the last days. M. Jacquemier first propounded the theory now universally accepted, viz., that when the insertion takes place at the fundus or upper part of the uterus, the ovum finds itself at first in a very large cavity, relatively to its size, and, increasing proportionately with the development of the womb, it only begins to be mechanically pressed at a somewhat advanced stage of pregnancy; but from that time the development of the fundus and of the superior portion of the uterus is less rapid, because the inferior portion commences to yield, in its turn, to the enlargement of the organ; and the detachment of the placenta is only possible in case of extreme distension of the uterus. But this is no

longer the case when the placenta is fixed on the internal os, or a short distance from it. The cavity of this part of the uterus forms a narrow canal; the placenta, very large from the first, partly covers it. The development of this narrow cavity proceeds from below upwards; and, as it is small in comparison with the ovum, its increase is premature; and it is more rapidly expanded than when the reverse is the case. During the first half of gestation, the placenta is prevented from being put on the stretch, partly by an increase which at first is very rapid; but later it is subjected to a distension which at an early period may lead to its partial separation. Hence the hæmorrhage during the fourth, fifth, and sixth months. When to the organic augmentation of the placenta becomes added the mechanical distention that acts on the lower segment of the uterus, and which makes it protrude more or less into the cavity of the pelvis, the dragging increases in a very marked manner, and often leads to a separation of a portion of the placenta. Hence the frequent increase of hæmorrhage during the seventh, eighth, and part of the ninth month, because the os should be firmly closed until the commencement of labour. When labour has set in, Levret's explanation fits exactly. It is the dilatation of the os that at this period is the real cause. This theory has been accepted by all accoucheurs up to the present time, with the exception of Dr. Barnes, and Sir James Simpson, who, however, are diametrically opposed to each other. Dr. Barnes assents to the theory of the detachment of the placenta, and that the blood comes from the uterus; whereas Sir J. Simpson maintains that the hæmorrhage comes chiefly from the placenta. If Jacquemier's and Levret's theory were correct, fatal hæmorrhage ought to occur at the time of labour, when the cervix dilated; but this is not always the case. In cases where there is only partial placenta prævia, it is easily explained; for when a portion of the placenta, contiguous to the os or covering it, has been detached, and the bleeding has ceased, the tendency to new partial detachments may disappear, because the progress of augmentation for the lower portion of the uterus removes very perceptibly the margin of the placenta most exposed to these new detachments, from the centre of the inferior segment, which is the part most mechanically distended; and again, because the dragging of the inferior border of the placenta on the superior portion is much diminished, being situated high up in the cavity of the uterus. But when it is a complete placenta prævia, the hæmorrhage should be inevitable; nevertheless, although during gestation it may have frequently occurred, it does not in some cases happen during labour, although the placenta continues to cover the orifice, and is pushed before the advancing head. Walter asserted that, in spite of the detachment of the placenta, the communications between the venous radicles and the arterioles were sufficiently large to permit the return of the blood into the veins without its escaping. Mercier asserted that, under the influence of a perversion of sensibility, the circulation was arrested. These theories are obviously erroneous. Moreau thought that death of the fœtus led to arrest of the circulation; but, even when the fœtus is dead, a detachment of the placenta is always accompanied with hæmorrhage. Jacquemier believed that in these cases the placenta was completely separated, or, at least, as far as the internal os, so that dilatation could proceed without

detaching any more, and that the utero-placental vessels were closed by coagula. Simpson, taking up the old idea of Rawlins of Oxford, declared that if the exposed uterine vessels contributed to the hæmorrhage it was very slight; that the blood came principally from the placental vessels. If this were true, removal of the placenta would cause the bleeding to cease, which, in many instances, is not the case. Dr. Barnes, adopting the ideas of Stolz of the integrity of the cervix, allows that the first hæmorrhage comes from excess of development of the placenta upon the cervix, a part not suited for its insertion. When the catamenial periods occur, the blood flows to the uterus and placenta, rendering the latter too large for the surface to which it is attached; it becomes separated at the margin of the internal os, and hæmorrhage takes place. Then, under the influence of the irritation caused by the partial detachment, and of the infiltration of blood into the substance of the placenta, and of small clots between the placenta and the uterine walls, the uterus is excited to contract. The contraction of the cervical zone may separate a larger portion of the placenta, but the detachment will never proceed beyond this zone. The true cause of cessation of the bleeding is energetic contraction of the uterus. No matter how produced, the hæmorrhage does not stop because the placenta is removed, but because the uterus is made to contract. The uterus is divided into three zones, the polar superior, meridian, and polar inferior or cervical zones. No accidents occur when the placenta is attached to the superior; when to the meridian, a tedious labour leads to *post partum* hæmorrhage. This theory of Dr. Barnes does not entirely belong to him. In 1865 Legroux published in the *Archives de Médecine*, a very interesting memoir, in which this idea may be found fully explained.

Progress.—Nägele was of opinion that, when it was complete placenta prævia, the hæmorrhage commenced earlier than when partial. Facts have justified this assertion. It is not rare, in partial placenta prævia, to have no bleeding until labour begins. According to Duval, there must always be some general cause; as, for instance, the menstrual molimen. The hæmorrhage is never internal; perhaps in some few instances a clot may close the orifice and so act as a plug to arrest the hæmorrhage momentarily. Labour is frequently in consequence premature. M. Gendrin's statement that labour does not begin in these cases until the foetus is dead, is contrary to facts. When labour sets in, the hæmorrhage is arrested of itself without any intervention, only in the following circumstances. 1. If the woman be not too much exhausted, if the os be soft, dilatable, the pelvis well formed, the presentation favourable; and if, above all, the uterine contractions be energetic. 2. If the insertion be marginal, and the waters break, then the head descends and acts as a plug. 3. If the placenta be torn through at its centre, allowing the escape of the liquor amnii and the foetus. This is a very rare accident. Portal, Wilks, Ingleby, and Jacquemier, each report a case. 4. If the placenta be expelled in advance of the foetus. Simpson founded his treatment on this. The hæmorrhage does not always cease with expulsion of the child, and frequently women succumb afterwards to inertia of the uterus.

Diagnosis.—The hæmorrhage rarely begins before the sixth month, generally at the seventh or eighth of pregnancy. Any loss of blood beginning at these

epochs is very suspicious of placenta prævia. If to this be added the absence of *ballotement* it becomes almost a certainty. This arises from the placenta, by its attachment to the lower segment of the uterus, distending and raising it up high in the pelvis, and also increasing the distance between the foetus and exploring digit, so that consequently the finger is prevented from feeling the impulse. Again, the presentation is frequently abnormal, which increases the difficulty, as it prevents the foetus from being felt. Auscultation, as proved by M. Depaul, does not assist in ascertaining the placental site. When labour has once begun, there is no difficulty in the diagnosis. Whenever there is a suspicion of placenta prævia, vaginal examination should be conducted with the greatest care, as frequently hæmorrhage is induced. That the bleeding ceases during the pains in accidental hæmorrhage, but not so in placenta prævia, is not based on fact, and cannot be used as a means of differential diagnosis. Legroux showed that this was an error in the interpretation of observation, and propounded the following deductions, which are the same as those of Dr. Barnes. 1. No matter where the insertion of the placenta may be, all hæmorrhage is due to the detachment of the placenta, and it takes place during the diastole and repose of the uterus. 2. The contraction of the uterus arrests it. 3. The blood that escapes at the systole is accumulated during the diastole between the separated surfaces and in the vagina. 4. The hæmorrhage would be arrested if the contraction were permanent, or if the dissevered surfaces were so placed that they could not be separated during the diastole. 5. The bleeding is almost entirely uterine. The placenta contributes but little, which could only effect the foetus, not the mother. It becomes exclusively uterine when the death of the child intercepts the utero-foetal circulation. [The accusation made by Dr. Charpentier, and repeated more than once, that Dr. Barnes derived his theory from M. Legroux, and then claimed to be the originator, is contradicted by his own statement. 'Barnes ne connaissait qu'imparfaitement le travail de Legroux, car il l'attribue à Leroux.' . . . Before the author made such an accusation, he should have taken pains to substantiate it.—*Rep.*]

Prognosis.—This is always grave, both for parent and for child. Should the mother come through the labour safely, there is always a danger of her sinking afterwards from some future complication. Respecting the prognosis of the child, Leroux admits a loss of 1 in 3; Madame Boivin of 3 in 11; Madame Lachapelle, 13 in 23; Dr. Barnes, 29 in 62. Simpson collected 113 cases, with a mortality of 73. Out of 61 cases in the Clinique during nineteen years, 39 infants died. At the Maternité, out of 79 cases, 45 were born living. Respecting the mother, Simpson collected 654 instances, with a mortality of 1 in 3.6. Rigby gives a death-rate of 1 in 3.8; Bland, of 1 in 3. At the Clinique 36 died and 19 were saved, the result in 8 is not stated. Barnes lost 6 out of 62. The Maternité report gives 70 mothers saved out of 79 cases; but the latter statistics are not reliable, as the records have been very imperfectly kept.

Pathological Anatomy.—The uterus, but above all the placenta, in these cases, presents various peculiarities. The placental site is the most vascular part of the uterus. Should the placenta be attached on the lower segment, or upon the cervix, these two parts become very vascular; the superior segment is

more spongy, thicker, and permeated with wide uterine sinuses, which account for the great hæmorrhage and the rapidity with which the patient is prostrated. The placenta and membranes invariably present such marked features, that placental presentation can be easily recognised after they have been extruded or expelled; and in some cases, by the sense of touch during labour, when it is partial, and the protruding membranes can be felt, they are found, instead of being thin and soft, thicker and more roughened. If the placenta have been in the normal position, and, on its expulsion with the membranes, the opening into the bag be found in the centre, as in natural labour, the membranes rupture at the most pendent point; but in complete and partial placenta prævia the rupture is situated close to the margin. In some instances, the membranes are completely separated from the placenta. Sirelius, of Helsingfors, published a memoir in the *Archives Générales de Médecine*, of 1861, wherein these various alterations are studied. Sirelius maintains that the villi grow from the decidua and not the chorion, and that they are bathed with a nutritive juice proceeding from a well-formed decidua. If the ovum be developed at the fundus of the uterus, these multiply and ramify; if, on the contrary, the nutritive elements be less abundant, they multiply and ramify less, as, for instance, in extra-uterine gestation. Hence the question arises, whether the structure of the decidua is the same when the placenta is normally as when it is abnormally placed; and again, whether the decidua is closed, or one with a small opening opposite the os. Sirelius, Virchow, and Küssmaul believe that the decidua is not a closed bag, but that it has a small orifice closed by a button of mucus. The placenta, in connection with an incompletely developed decidua, and less vascular, undergoes corresponding modifications. Its form is more irregular; instead of being round, its appearance is fragmentary, the cotyledons are more separated from each other, and not so thick; in some cases it becomes nearly a membranous placenta; finally, in consequence of successive hæmorrhages, the external surface presents projections and beds of coagulated fibrine, and under the microscope specific alterations have been discovered. These observations are based upon six cases, three by Braun, one each by Gurlt, Barnes, and McClintock. Braun's cases had a secondary placenta (*placenta succenturiata*). These alterations consisted of a spreading out of the placenta into membranes, or its division into two by a groove; and, as a corresponding alteration, the interuterine-placental membrane was imperfectly developed opposite the orifices of the uterus, sometimes replaced by a thin layer of connective tissue, or by the decidua in the process of fatty degeneration, and scattered with pigment-covering and the lamina of placental tissue, where the villi were transformed into cellular tissue, forming flattened cotyledons next the uterus without the circular vein. If it be partial placenta prævia, the part in contact with the os alone exhibits these remarkable lesions, but only masses of fibrine and infarcts in the superficial layers on the interior of the villi. According to Lumpe, Seyfert, and Braun, when in placenta prævia the cotyledons are unequal in number, the chief portion of the placenta is attached to the right side in thirty-two out of thirty-nine cases. W. C. GRIGG, M.D.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

TOUSSAINT ON THE MECHANISM OF REJECTION IN RUMINATION.—M. Toussaint, in a note to the French Academy of Sciences, says that hitherto the manner of the return of food from rumen to mouth, in rumination, has been in some obscurity. The phenomena of rejection are so complex and rapid, that it is hardly possible to determine them by simple observation; the mechanism can only be demonstrated with the aid of registering apparatus.

In studying rumination, physiologists have nearly always given their attention to the digestive organs, and the muscular forces acting directly on these, as the diaphragm and abdominal muscles; and little effort has been made to ascertain whether the mass of food is not only pushed into the œsophagus by such compression of the rumen, but also sucked into it by a particular action of the breathing organs.

M. Chauveau, however, has long affirmed this suction. According to him, the process is this. At the moment of rejection the glottis closes; then there is a very strong and sudden contraction of the diaphragm, producing considerable rarefaction of the air in the lung. This diminution of pressure is indicated by the strong flow of blood in the jugulars. It must have the same action on the matters in the rumen and the reticulum near the cardiac orifice, which are much dilated; they are urged, therefore, into the open orifice of the œsophagus. Then, immediately, a contraction of the right pillar of the diaphragm, cutting off these matters, provokes the antiperistaltic contraction of the œsophagus, which thus brings them into the mouth.

This theory, deduced from pure observation, has in all points been confirmed, M. Toussaint says, by experiments made in the laboratory of the École de Lyon, on the cow and the sheep. (The mechanism in both is the same.) A healthy cow being selected, a tube about two millimètres (about 0.08 inch) in diameter was introduced into the trachea, and connected with the drum of a registering apparatus. The thorax and the abdomen were then surrounded with Marey's pneographic belts, which transmit the movements of these parts. The animal was not excited, and began to ruminate immediately. A tracing was obtained which showed the relations between the intrathoracic pressure and the movements of the ribs and the abdomen.

In the respiratory movements, the three curves exactly superposed present similar undulations. When a movement of rejection occurs, the tracheal curve shows a preliminary elevation more or less marked, forming a plateau, and then going down considerably. The manometric measurements show that this fall corresponds to a diminution of pressure of about two centimètres of mercury. The ascent is not less rapid than the descent; the two movements take place in a half or three-quarters of a second; the curve rises again to its previous point, and remains there, describing a second plateau, during one or two seconds.

On examining the curves of the ribs and of the abdomen, it is easy to explain the peculiarities of the tracheal tracing. In the abdominal curve there is a sudden descent, which lasts the same time as the descent of the tracheal curve and corresponds exactly to it, in its two times. The descent can only be produced by a diaphragmatic contraction, which forces back the abdominal organs, and the ascent by

a relaxation of the diaphragm, aided by abdominal contraction.

The tracing of the ribs, on the other hand, shows an elevation of the curve at the moment of the diaphragmatic contraction, in consequence of a sinking of the thorax; the sinking is evidently caused by atmospheric pressure, which only ceases at the moment when the diaphragm is relaxed; so that the two tracings, similar during respiration, are at this moment in antagonism, and furnish opposite curves.

It is at the moment of contraction of the diaphragm that the alimentary matters are engaged in the œsophagus; for this tube has been caused strongly to dilate under the influence of rarefaction of air in the thorax and the elasticity of the lung. It is equally stretched through the backward movement of the diaphragm, which draws it with it. The dilute matters of the rumen are then precipitated into this orifice, as they would rise into a rigid tube when suction is applied.

To demonstrate the occlusion of the glottis, the arrangement being as in the preceding experiment, another fine tube is introduced into the superior meatus of the nasal cavities. During the respiratory movements, the curves of the nose and the trachea resemble each other completely; but immediately the glottis closes, the feather of the nasal apparatus becomes motionless in the zero position, and its trace is a straight line, which is exactly superposed on the great depression of the tracheal tracing, and the two plateaus which limit it before and behind.

It was interesting to know what would occur if the intrapulmonary air were not, at the moment of rejection, completely imprisoned, as is normally the case through closure of the glottis. Tracheotomy was therefore performed, and by means of a special apparatus, the trachea could be closed or opened at will, without interrupting the circulation of the air and without the animal being affected. Under such conditions, if the trachea be opened, a diminution of amplitude in the undulations of the pulmonary curve is observed. The plateaus which precede and follow rejection are no longer formed in the tracheal curve. The movements of the ribs and the diaphragm are now synergic, and that in the first movement, without there having been preparation of the animal. There was a very rapid inspiration produced by a sudden and simultaneous contraction of the ribs and the diaphragm, causing a diminution of pressure sufficient for the matters to be able to penetrate into the œsophageal infundibulum.

It is, then, pretty evident that the rarefaction of the air in the chest concurs largely in causing the passage of substances from the rumen into the œsophagus; but is this the only cause, and have not the contractions of the rumen and the reticulum their importance? To ascertain this, through a wound made in the œsophagus at the base of the neck, a probe was introduced as far as the anterior part of the rumen. The cow ruminated some hours afterwards with very great difficulty; and yet, in spite of the violent efforts she made to bring the substances into her mouth, during these efforts the capsule belonging to the rumen was never seen to displace the corresponding feather. The diaphragmatic contractions, on the other hand, were very pronounced. In this experiment, the ordinary movements of the rumen are nevertheless very marked; but they never correspond to movements of rejection, further, they are slow, and last at least eight to twelve

seconds. It appears, then, that in rejection, the rumen is passive.

Most authors, after inspection of the exterior movements of an animal in rumination, speak of a rapid inspiration and a no less rapid expiration. The movements of the abdomen and the ribs may indeed give this change; but the fact of the occlusion of the glottis shows us that there can only be change of intrathoracic pressure appropriate to a determinate end, but not true respiratory movements.

M. Toussaint also measured the velocity of ascent of the ruminated mass; its course is extremely rapid. It takes only half a second to a second to traverse the whole length of the œsophagus; and as the occlusion of the glottis lasts about four or even five seconds, the mass always reaches the mouth before communication is established between the lung and the air without. The first deglutition of liquid which follows the arrival of the mass in the mouth, takes place generally towards the end of the closure of the glottis.

When the animal swallows, there is occlusion of the glottis; the tracing of the nasal cavity returns, in that case, to the zero pressure. Before this occlusion, there is a movement of the belts of the thorax and the abdomen, which may be interpreted in the sense of a very light inspiration, if the deglutition occur during normal expiration, and a light expiration if it occurs during inspiration.

M. Toussaint concludes that the rarefaction of air in the lung is the chief cause of passage of alimentary matter from the rumen and the reticulum into the œsophagus; and that, consequently, there is not, properly speaking, a previous formation of bolus. This rarefaction is produced by a diaphragmatic contraction, while the glottis is closed. The ribs do not intervene.

The diminution of intrapulmonary pressure is indispensable to the penetration of the food into the œsophagus; for if an aperture is made in the trachea, the ribs then come to the help of the diaphragm, and rise suddenly and at the same time with it, to produce the depression instantaneously.

Deglutition is a phenomenon much more complex than has been supposed, and requires the concurrence of the diaphragm and the ribs.

HECKEL ON THE LOCALISATION OF MINERAL MATTERS IN SOME ANIMAL ORGANISMS. — In two recent communications to the French Academy (*Comptes Rendus*, August 24 and September 7), M. Heckel has made known some facts which throw light on the connection between localisation or accumulation of mineral or organic substances and the great physiological functions.

Insects are capable of absorbing arsenical matters, and resisting their hurtful action, if these be given in small doses, frequently repeated. M. Heckel experimented with *Mantis religiosa*, *Blatta occidentalis*, and *Cerambyx heros*; subjecting them, with great care, to a mixed arsenical diet (flour and metallic arsenic), during forty days. They were then killed, and the alimentary canal was dissected. Arsenic was sought both in the stomachal cæcums and the Malpighian tubes, but only the latter contained it very manifestly. There was nothing abnormal in the superior cæca. In the hepatic tubes, the cells of large dimensions which cover the tunica propria, contained a considerable quantity of fatty globules, while the granular matter was very much reduced. These elements are not alone modified by the metallic localisation; the physiological functions are dis-

turbed, for the liquid secreted by these organs loses its normal coloration, becoming quite colourless; its bitter taste also disappears. Judging by exterior characters, this Malpighian liquid might then rank among the products of glands exclusively urinary.

These phenomena M. Heckel regards as lending support to the view which looks upon the tubes of Malpighi as mixed organs (urinary and hepatic). This property of accumulating arsenic is almost characteristic of hepatic tissue everywhere in nature. In a voracious land-crab of the Antilles (*Gecarcinus ruricola*), after a similar experimentation of some days, the author always found arsenic manifestly in the hepatic tissue; and of the whole system, this was the viscus which contained most of it after prolonged experimentation. 'Here doubt is not possible; we have to do with a liver, and the similarity of action between the Malpighian bodies and this gland of determinate nature leads us to conclude an identity of functions. From the comparative anatomy point of view, the same connection has been happily pointed out by M. Milne-Edwards, who establishes the transition between the Malpighian tubes and the liver of Crustacea, by the tubes of Isopoda.'

M. Heckel extended his researches to Mollusca, experimenting on *Helix aspersa* and *Zonites Alge-rius*. All the animals subjected to a prolonged and exclusive diet of white lead or acetate of lead with flour (in equal proportions), presented, after a month, the phenomenon of accumulation in the liver, but besides this deposit, which the author calls normal, there was an abnormal deposit, very abundant, comparatively, in the cerebroid ganglia, and strikingly constant. These masses have, in the physiological state, a pale appearance; after the accumulation the colour passes to a well marked black, owing to the formation of a sulphuret of lead. 'This fact appears to me to have important consequences. Physicians might take advantage of it to establish the true etiology of saturnine encephalopathy, a disease well known in man, and in which the presence of lead in the brain has only been a strong presumption, the proof from analysis not being absolutely established; and for the biologist these facts are not less interesting, inasmuch as they seem, from a morphological point of view, to justify the comparison which has given to the upper nervous masses of the œsophageal ring the name of cerebroid ganglia. It is to be remarked that these ganglia, first of all, play the part of accumulating bodies; that they alone give rise to sulphuret of lead; that, at the least, they are the first to turn black, if it be the case that prolonged experimentation produces the same phenomenon in other nervous centres—a question not yet settled. Connect with this fact the general agreement in admitting in the case of the higher vertebrates (man especially), the indemnity of the cerebellum from plumbic contamination by accumulation (all the reliable analyses of saturnine brains hitherto seem to prove it), and we are authorised to ask if it may not be inferred that the subœsophageal ganglia may be considered, morphologically, as the analogues of the brain of superior animals. The affirmation is seductive; but then the disappearance of the commissure which unites these organs to the inferior ganglia (which become comparable to the cerebellum) being an index of superiority, it would be necessary to suppose that the Acephala (*Pecten*, etc.), in which this coalescence of ganglia is most common, are also higher in organisation than many of the Gastropoda; and this consequence could not be admitted

without discussion. Evidently, the question raised by the phenomenon of localisation cannot be fully answered without the aid of direct experimentation and of comparative anatomy.'

M. Heckel next describes experiments made with Cephalopoda and Gasteropoda. He put some of them into an aquarium, the water of which was renewed daily, and for three months gave them madder in a mixture of which flesh was the base. In no case did he obtain coloration of the internal shell; but it was quite otherwise with the cephalic cartilage and all the cartilaginous parts of the skeleton of these molluscs; these osseous pieces were coloured distinctly red. Hence it is necessary, he says, to distinguish clearly in molluscs, notwithstanding common interior position, between the hard pieces belonging to the skeleton and those belonging to the shell. All tends to indicate a morphological difference between these organic productions, which are distinct, besides, in chemical composition.

ALEX. B. MACDOWALL.

LUYS ON THE PHYSIOLOGY OF THE BRAIN.—In a treatise on the 'Physiology of the Brain,' just published, Dr. Luys, of the Salpêtrière, says that the activity of the brain is governed by the same laws and the same conditions of the organic mechanism which preside over the activity of the different segments of the spinal axis and medulla oblongata. Its activity is decomposable into a series of reflex processes, which are evolved as a result of the reaction of the preformed organic substratum and the natural play of the various forces excited to activity. Every reflex process is composed of three successive periods intimately connected with each other; a period of incidence, an intermediate period, and a period of reflexion. The first is always an impression irradiated from a sensory plexus, a centripetal impression, conscious or unconscious, and marks the *début* of the whole phenomenon, and it is always an attendant or satellite motor reaction that completes it. In the brain, as in the spinal cord, there is a system of zones or cells disposed for the reception of centripetal impressions, and a system of zones disposed for the emission of motor excitations. These two systems constitute a complete whole, and a veritable dynamic unity, across which the nervous currents are propagated. Physiological research shows that it is in the networks of the cortical substance of the brain that sensory impressions of all kinds reach their ultimate stage, taking from this point a new form, and becoming transformed into psychical citations, which again lead to movement. The networks of the cortical substance therefore represent a vast common reserve for all impressions belonging either to animal or to vegetable life; and in a physiological point of view a synthesis of all the partial sensibilities of the organ, *i.e.* the *sensorium commune*. On the other hand, the experiments of Flourens and Ferrier have shown that there exist in the cortical substance of the brain a series of isolated and independent motor centres governing certain groups of muscles. A cerebral reflex process differs from a spinal one, in its being amplified and transformed by the proper action of the exclusively cerebral nervous element interposed in its course. After dealing in detail with the several stages of the reflex processes taking place in the brain, Dr. Luys remarks that the action of emitting voluntary articulate sounds—speech—presents in its physiological evolution the highest expression of cerebral activity.

It is decomposable, like all the dynamic manifestations of the same type, into a series of successive and intimately associated phenomena. The processes which constitute it may be stated thus: first, a period of incidence which corresponds to the arrival of the acoustic impression, and its diffusion in the regions of the brain specially destined to receive it; secondly, a period of propagation during which the molecular changes or vibrations reach the purely intellectual regions, and lead to the participation of the conscious individual; thirdly, a period of reflexion, in which the excitations in their primordial succession, after being propagated throughout the whole extent of the cortical network, and having excited the active forces of its elements, are exported outwards as a synthesis of multiple activities, and pass into the region of automatic activity, which then translates them into precise articulate sounds. Speech essentially results from the synergic action of a psycho-intellectual and of an automatic sphere of nervous activity, the former comprehending the affection of the sensorium and subsequently of the conscious individual, the latter embracing the integrated and co-ordinated translation of the sensorial excitation. Anatomically, this last commences in the deep zones of cells of the cortex of the brain, and is conducted through the whole cortical striated fibres, then through the grey substance of the corpus striatum and of the pons, and terminates in the nuclei of origin of the hypoglossal and spinal nerves, which convey the impulses to the muscles affecting phonation.

LECOMTE ON ROTATION OF THE HAND.—The common theory of the rotation of the hand is, that the radius alone moves around the ulna in the rotation of the forearm and hand. Dr. O. Lecomte contests this view, and in an article in the *Archives Générales de Médecine* maintains that the rotation of the forearm and hand is executed by the simultaneous, harmonious, and similar movement of both bones of the forearm, the radius and the ulna; and that the rotation of the hand is not an unique movement. One principal mode of rotation may be admitted around a median axis, which is the prolongation of the line of the third metacarpal bone and middle finger; but the axis of this movement may be displaced either inwards or outwards, and thus secondary modes of rotation of the hand are produced around axes passing through each of the other fingers or the intermediate spaces. The play of articulations in the movements of rotation is very complex. At the elbow, notably, the humero-cubital articulation plays an important part. The ulna executes on the trochlea of the humerus a movement of spiral torsion, which may vary in extent, but which is present in all the modes of rotation. The system of the rotator muscles of the hand comprises four muscles; two for the radius, two for the ulna. Each of these bones has a pronator and a supinator. There are a radial pronator (the pronator teres); and a radial supinator (the supinator brevis); an ulnar pronator (the anconeus); and an ulnar supinator (pronator quadratus).

LÖWENBERG ON THE EFFECTS OF THE DIVISION OF THE SEMICIRCULAR CANALS OF THE EAR.—In Dr. Knapp's *Archives of Ophthalmology and Otology* (vol. iii. no. 2), Dr. Löwenberg, of Paris, gives the results of a series of researches on

the effects of division of the semicircular canals. Flourens observed some peculiar derangements of motion in animals in which he had cut these canals, chiefly consisting in rotatory movements of the head and of the body. Löwenberg, in repeating these experiments, satisfied himself that accidental injury of portions of the brain cannot be considered as constituting a cause of these phenomena. In his experiments the knife was carried into the tympanum forwards and upwards. There immediately followed the characteristic movements of the head from right to left, and in addition the 'mouvements de manège.' The right ear seemed to have lost its hearing power. The 'mouvements de manège' continued for several days, but diminished in intensity during sleep. If the animal were shaken or struck they increased in violence. On the third day the animal was killed. The dissection showed that while the right auditory nerve was almost completely divided, at the same time the semicircular canals of this side were partly crushed. This occurred in all cases. The substance of the brain was not injured; vomiting was not observed; derangements of motion only occurred when the injury was unilateral. He arrives at the following conclusions. 1. The derangements of motion are the result of irritation of the membranous canals and not of paralysis. 2. The irritation of the semicircular canals produces the convulsive movements reflectively, without participation of consciousness. Consciousness participates in these effects only in so far as it gives rise to renewed irritation by inciting the animal to voluntary movement. 3. The communication of reflex excitation from the nerves of the membranous semicircular canals to the motor nerves takes place in the thalamus.

MATERIA MEDICA AND THERAPEUTICS.

BALFOUR ON THE TREATMENT OF DIABETES.—At the meeting of the Edinburgh Medico-Chirurgical Society, on July 15 (*Edinburgh Medical Journal*, September, 1874), Dr. G. W. Balfour remarked that in November, 1871, he had read to the society an account of seven cases of diabetes mellitus, treated with more or less success by diet of skimmed milk and animal food, with full doses (three to nine drachms daily) of lactic acid (see *Edinburgh Medical Journal*, December, 1871). He now gave a history of the result in several of the cases.

Case 1 was phthisical, and died while under treatment, as noted at the time, after considerable improvement, which lasted three months.

Case 2. D. H., aged fifty-three, came under treatment weighing 8 stone 8 lbs., and after four months' treatment left, weighing 11 stone; three months subsequently he presented himself at the infirmary, still fat and well, weighing 12 stone, 3 lbs., using a mixed diet, and his urine free from sugar. He has not since been heard of, and is not known at his former address.

Case 3. M. E., aged fifteen, when first seen weighed 4 stone 11 lbs.; after four months' treatment she weighed 5 stone 10 lbs., but was unable to take mixed diet without a reappearance of the sugar. She left improved, but returned about a year later, worse; again improved, and was discharged, and was finally readmitted in October, 1873, still labouring under diabetes, and again much emaciated. She

died a few days after admission from gangrene of the lung, apparently induced by cold caught on her journey to the infirmary.

Case 4. A. M., aged twenty-five, improved greatly, but was wholly lost sight of after only two weeks' treatment.

Case 5 was benefited by the treatment, but had to be dismissed for neglect of rules.

Case 6. M. W., aged seventeen, weighing 5 stone 2 lbs., continued to improve in health and weight for many months. She first came under treatment on November 3, 1871, and a year afterwards she had gained one stone and a half, having in the meantime passed through an attack of small-pox, and also one of acute rheumatism; the latter not only came on while she was using the lactic acid, but was also recovered from without the acid being given up. While on her diet of milk, meat, and green vegetables, her urine remained free from sugar, but she was unable to use any starchy article of diet without a recurrence of sugar in her urine. She subsequently became phthisical, and died last winter.

Case 7. R. A., aged thirty-five, weighing 8 stone 11 lbs., improved very much under treatment, gained about a stone in weight, and remained free from sugar as long as he avoided any dietetic imprudence; he led an active and exposed life, and died about a year after coming under observation, from an attack of pneumonia caught while on a journey.

Dr. Balfour remarked that these were very serious cases, and the great improvement which they all made under treatment, and the apparent cure of one of them, seemed a sufficient guarantee of the importance of lactic acid as a treatment for, at least, a certain class of diabetics; viz., those in which the disease, or its more important symptoms, depend upon diminished combustion, characterised by weakness, emaciation, and a low temperature. Dr. Balfour had treated many other patients in the same way, always with a certain amount of success, and in some the success had been very gratifying. The fact that the girl (in Case 6) got rheumatism whilst using the lactic acid would seem to confirm Dr. Foster's view, that there is a risk of this treatment inducing that disease; out her recovery from the rheumatism without giving up the acid, indicated that in her case the rheumatism and lactic acid were not connected as cause and effect. Dr. Balfour had never seen rheumatism dependent upon the use of the lactic acid, but had been informed of one case, besides those recorded by Dr. Foster, in which this disease invariably occurred whenever the acid had been used for only a short time; so that this effect of the acid seemed to be real in certain constitutions, but this must be of rare occurrence.

There is another form of diabetes characterised by increased transformation of glycogen within the liver, which goes on even when the patient is restricted to an exclusively flesh diet. Such patients have a normal temperature, and maintain their plumpness and ruddy countenance long after they have displayed unequivocal symptoms of this most serious disease. But the increased transformation of glycogen into sugar in the liver is believed to depend upon a relative increase in that organ of the blood-ferment which promotes this change. Accordingly, several months ago, Drs. Ebstein and Müller, in Breslau, proposed to employ carbolic acid to prevent this change and to cure the disease, and they have published a couple of cases in which very great improvement followed the use of carbolic acid

in doses of about six grains daily, and in one of them the diet was a mixed one throughout (*Berliner Klinische Wochenschrift*, December 8, 1873; see also LONDON MEDICAL RECORD, February 11, 1874). Dr. Balfour employed the carbolic acid in several cases, sometimes in more than double the doses recommended by these authors, but without much benefit. In one case, the sugar, after a time, did disappear; but as the patient was dying of phthisis, and died a few days subsequently, it may be doubted whether the disappearance of the sugar was due to the carbolic acid. The acid may be given in pills made with liquorice powder, and seems worthy of further trial.

PUBLIC HEALTH.

THE GERMAN PUBLIC HEALTH ASSOCIATION.*

The second annual meeting of the Association was opened on September 12, by chief Burgomaster Von Winter, in the hall of the old Franciscan monastery at Dantzig. This city was chosen as the place of meeting, on account of the great amount of sanitary work that has been done there in recent years in regard to water-supply, drainage, irrigation of fields, etc.

The Association has already spread over the whole of Germany, and numbers 552 members. Burgomaster Dr. Erhardt, of Munich, was chosen president, and Privy Councillor Günther, of Dresden, and Commerce-Councillor Bischoff, of Dantzig, vice-presidents.

The proceedings were commenced with a report by Dr. Strassmann, of Berlin, on the subject of the Demands of Public Health on the Police of Buildings (*Baupolizei*). The condition of Berlin as regards buildings has become much worse during the last twenty years, through greedy speculation. In the present day, those who undertake to erect buildings strive only to thoroughly use up all the available building-ground, to use every corner that is but just suitable, and to establish as many extra rooms as can be let. Hence in Berlin the type of lodging-cellars prevails. Within three years the one-storeyed houses in Berlin has decreased eight per cent., the two-storeyed three per cent., and the three-storeyed one and a half per cent.; while the four-storeyed houses have increased eleven per cent., and those with five and more storeys forty-three per cent. The houses having open frontages with cellar-dwellings have increased fourteen per cent., and the dwellings in courts have increased from 6,937 to 7,204, or four per cent. It has been shown by statistics, that the height of lodgings has always a great influence on the health of the inmates; and in the new parts of the town the unfavourable conditions of building development have greatly increased. The lodgings on the fourth and higher storeys show a death-rate exceeding that of the cellars, namely, 2.6 to 2.9 per cent. Of the lodgings, 60,000 are overcrowded; and 200,000 persons have to live in lodgings with only one room that has a fire-place. When, in addition to this, we take into account the bad water-supply and drainage, and the pest-exhaling gutters, with a

* From the *Allgemeine Medicinische Central-Zeitung*, September 19, 23, and 26, 1874.

water-surface of 721 acres, it is not surprising that, next to that of New York, the death-rate of Berlin is the worst. There is already one death in 30.5 inhabitants. Among the 27,600 deaths last year, 11,000, or two-fifths, occurred in children. The reporter summed up his opinion as follows. 1. Settlement in the neighbourhood of towns ought to be encouraged. 2. In the new parts of towns, a system of water-supply corresponding with the demands of public health should be established. 3. The erection of detached buildings and groups of buildings should be promoted. 4. In streets which are not principal thoroughfares, there should be a moderate width of road. 5. The height of buildings should not exceed the width of the street, and in no case should be greater than four storeys, including the ground-floor. 6. One-third of each piece of building ground should remain free from buildings. To these conclusions another was added by the joint reporter with Dr. Strassmann, Herr von Haselberg, who at the same time agreed with his colleague's opinions, viz.: 7. Lodging and sleeping rooms, the floor of which lies entirely or partly below the level of the surrounding soil, should only be allowed if they at least answer to the conditions laid down for lodgings with regard to their water-supply, their situation above the highest level of ground-water, their height as to light and ventilation, and the lateral separation of their walls from the soil. Individual places, however, may make further regulations regarding cellar-lodgings, or may prohibit them altogether.

After discussion, the Congress decided to abstain from passing definite resolutions on the subject, but to defer the decision on the whole question to the next meeting.

Dr. Schwabe, of Berlin, made a communication on the Influence of various Lodgings on the Health of the Inmates, so far as can be ascertained by Statistics. The following were the conclusions at which he arrived. 1. The death-rate is greater in cellar-lodgings than in any others. 2. Epidemic diseases prevail more severely in cellar-lodgings than in any others. 3. Among epidemic diseases, diarrhoeal affections occur with greater intensity on the ground-floor.

The Association agreed in general with these deductions, but decided to abstain from passing detailed resolutions, and to appoint a referee who should report on the question, and collect and compare the sanitary regulations affecting cellar-lodgings in the most important large towns, with the view of framing a general code of regulations.

At the meeting on September 14, Dr. Sander, of Barmen (in the place of Privy Councillor Esse, of Berlin, absent through illness), presented a report on the question: What are the Reasons for, and what against, the Assembling of Different Kinds of Diseases in the same Hospital? The reporter described the first traces of the care of the sick in ancient times; and then passed on to the middle age, with its leper-houses, pest-houses, etc. The Church was rightly credited with having systematically carried out the care of the sick. Hospitals proper dated first from the ninth century. To Pope Innocent III. was due the merit of uniform organisation, for hospitals were erected everywhere after the model of the Santo Spirito, and were soon known by the name of Hospitals of the Holy Ghost. In the last century, Frederick I. founded the Charité in

Berlin, and Joseph II. the Allgemeine Krankenhaus in Vienna. In France, Louis XIV. founded hundreds of hospitals after one plan, one like another. The results could not be lasting. Dr. Sander drew a picture of those hospitals from Tenon's work. The vast wards were quite crammed with beds; it was never considered necessary to make provision for free space; and in each bed lay two, three, or even four patients together. Hence the enormous mortality in these wards. Very often, the patients lay outside the bed on benches, in order to be free from the kicks and blows of their fellow-sufferers; and, as patients suffering from infectious diseases were not separated from the others, it is not surprising that many, admitted into hospital with trivial diseases, died of the contagious disorders. In England, hospitals were and are for the most part the work of private beneficence. This has given rise to an immoderate development of specialities, of which the reporter disapproved; while, on the other hand, it has frequently produced irremediable mischiefs, in consequence of the benefactors of the hospitals, as patrons, holding the right of filling a certain number of beds as they please. There are in London special hospitals for all imaginable diseases, for diseases of the eye, throat, skin, and hip; hospitals for convalescents, for consumption, for diseases of children, etc. The most recent institution of the kind in London is a hospital for diseases of women, in which, it is said, the patients are treated by female physicians alone. Another English speciality is the hospitals for consumption. This excessive specialisation of hospitals the reporter regarded as in many cases useful, but necessary only in a few cases, and often even injurious. The results obtained in the small hospitals and in private practice appeared from statistics to be not better than in the naturally well-regulated large hospitals. The reporter regarded the facts hitherto adduced in support of the opposite opinion as much too scanty to allow any fixed conclusions to be drawn from them. All the so-called hospital diseases occur in the same way outside hospitals; and neither small hospitals nor private practice possess any advantage which cannot be obtained in the larger institutions by proper hygienic management. Dr. Sander regarded special hospitals as necessary only for cholera, small-pox, and epilepsy. For cholera and small-pox especially, provision is made by the erection of barrack-hospitals, as has been done at Moabit near Berlin. The reporter pleaded in favour of the system usual in Germany, of giving the hospitals a communal or parochial character. The ordinary practice there of erecting permanent institutions in the form of barracks for small-pox and cholera alone, and, as regards other diseases, abstaining from forced specialisation, he regarded as the only correct plan. The hospitals should be general; and isolation should be carried out only so far as was demanded in the interests of the public.

The discussion which followed was on the questions of the greater utility of large or small hospitals, the isolation of cases of infectious diseases, etc.

Dr. Börner, of Berlin, spoke in favour of the erection of small hospitals. Granting, he said, that the statistics of hospitals rested on a very inferior and incomplete foundation, it was to be observed that it was very difficult to distinguish between what was absolutely established, what was only probable, and what was improbable or false. We could not escape from the necessity of using a strictly scientific

method, but the carrying out of practical regulations could not wait for this. This was applicable to statistics as the indispensable basis of public hygiene. If they did not give a sufficient answer, if their material was still imperfect, we must be content with taking as a foundation the more general facts and those theories which were recognised as correct. Long before statistics had brought together the figures which showed to large towns their sanitary dangers, public hygiene had recommended a number of regulations which ultimately proved to be perfectly correct when tested by statistics. This was the case with drainage, of the favourable influence of which on mortality, accurate statistics were still wanting. Under all circumstances, the assumption that smaller hospitals were most advantageous was, in his opinion, not set aside by the want of statistics. He was convinced that small hospitals, capable of holding from 150 to 200 beds, were to be preferred to larger ones. The physician having charge of the cases must stand absolutely at the head of the hospital; and this could not possibly be carried out in hospitals with more than 250 beds. The statistics of military medicine, the only statistical information in Prussia as regards hospitals, might furnish some important contributions towards the settlement of the question, if it should be established that the mortality in the small garrison hospitals was less than in the large ones; this would be of special importance, as the patients treated in them would afford material of a tolerably uniform kind as regarded age, constitution, etc. Since the war of 1870-71, a similar view had gained ground in France. In the commission on the new Hôtel-Dieu in Paris, such men as Trélat, Broca, and Vidal, had expressed themselves in favour of small hospitals.

General-Surgeon Roth, of Dresden, remarked that the differences between individual garrisons were much too great to allow any statistical conclusions of value, as to the relative results of large or small military hospitals, to be drawn from them.

Privy-Councillor Varrentrapp, of Frankfurt, spoke in favour of small hospitals; laying special stress on the circumstance that in them alone medical direction could be carried out.

The discussion ended with an expression of opinion that the medical and the scientific decision of the question under consideration were still too divergent to allow any fixed conclusion to be drawn.

Dr. Hirt, of Breslau, presented a report on Female Labour in Manufactories. While in general numerous causes of disease existed in the various kinds of industrial occupation, this was the case in a much higher degree as regards women. While the healthy woman required for herself a greater amount of protection than the man, this protection was in a special manner required for pregnant females employed in factories. For the protection of the latter, the speaker demanded general legal regulations. Long continued exhausting labour, machine-sewing, etc., were known to produce abortion; and this was also caused by working in certain poisonous materials, viz., lead, phosphorus, mercury, anilin, arsenic, and copper. Of 140 pregnant women working in lead, 82 had abortion, or 58 per cent. Statistics showed similar results with regard to mercury, arsenic, and anilin. It was further established that the action of these poisonous matters was communicated from the organism of the mother to that of the child. In

1,000 cases of female lead-workers, 785 had stillbirths; and in addition, 40 per cent. of their children died within the first, and 30 per cent. within the second year. The annual mortality among children of females employed in coating mirrors was 65 per cent. In normal conditions, the mortality of children in the first year was only 20 per cent., and even in large towns it was not higher than 20 or 25 per cent. Again, the female labourers referred to were much too imprudent after their confinement, and were in too great haste to return to work. Hitherto, unfortunately, legislation had afforded no protection, either in England, France, Austria, Germany, or Belgium. Switzerland alone had made a beginning, and must be an enlightening example to Germany. The humanity of the house of Dollfuss, in Mühlhausen, was also worthy of mention, where full leave of absence was allowed to all the pregnant females for three weeks before and three weeks after confinement. The reporter summed up as follows. 1. Pregnant women should be interdicted during the second half of pregnancy from employment in all branches of industry where poisonous materials are used; as, for example, the manufacture of coloured papers and artificial flowers, the coating of mirrors, the manufacture of caoutchouc articles, etc.; and they should also be excluded from factories where injurious gases abound. 2. No puerperal woman should be employed in any manufactory before the ninth day after her confinement. 3. No puerperal woman should be employed in a factory where poisonous materials are used before the forty-second day after her delivery.

These conclusions were received with lively approbation. The Association, however, abstained from passing a special resolution, but left it to the individual members to work out the ideas in their respective districts.

At the meeting on September 15, Professor Reichardt, of Jena, read a report on the Supply of Water from Springs and Rivers. He said that the evil influence of bad drinking-water was well known. Drinking-water should not only be pure, but its quality should be, as far as possible, uniform; for sudden changes in drinking-water were injurious to health. River-water never afforded an useful drinking-water, as it was subject to many alterations, and changes of temperature, local admixtures, and many processes of decomposition; while in spring-water the variations in composition, hardness, etc., are quite unimportant. It should, therefore, be the duty of the communes to endeavour to procure a supply of spring-water; if this were absolutely unattainable, river-water was in general preferable to pump-wells. In spite of filtering, etc., however, river-water remained only mechanically, not chemically purified. If the use of river-water could not be avoided, it was recommended not to take it direct from the rivers, but to use that which had passed for some distance through the layers of the alluvial soil. On the whole, however, it might be assumed that, as was the case at Vienna and Frankfurt, other towns ought properly to be able to derive their water-supply from springs.

The joint referee, Engineer Schmick, of Frankfort-on-the-Main, arrived at the same result from a technical examination of the question. The quality and purity of spring-water were dependent on the nature of the layers of earth through which the water passed. The thinner these layers were, the less was their

power of purifying the water; besides, in consequence of the solvent action of the water, there was not only mechanical but chemical impurity. Besides the quantity of the springs, their quality also must be ascertained by geological examination. The conditions of a good water-supply might be treated from three points of view. The first was the quality of the water, the conditions of which the reporter fully described; it should not only be fit for drinking but also for cooking purposes. With regard to the second point, that of quantity, it was a subject for consideration whether all the water supplied to a town should be of the same kind, or whether there might be separate supplies for houses and for industrial purposes. With regard to the locality of the water, it should be supplied to all storeys with a certain excess of pressure. The supply of river-water should be unconditionally rejected; and so should also the supply of 'ground-water,' which, in regard to quantity, was the most uncertain of all supplies. On the other hand, the storing of rain-water, as in England, possessed many advantages. Still, the water-supply from springs remained the hygienic ideal. Investigations on this subject would certainly show that many towns, hitherto unaware of the fact, possessed good springs. In Brunswick there was a project for obtaining a supply from the Harz mountains, not only for the town, but for the whole state.

In the discussion, the speakers supported the principles followed in their different towns. Medical Councillor Günther, of Dresden, approved of the use of 'ground-water,' which had proved very good there; while Dr. Sander supported the plan of supply from rivers. The question having arisen what was to be understood by the word 'spring' (*Quelle*), it was remarked that the so-called 'ground-water' supply in Dresden was merely a supply from springs—the 'ground-water' being only the overflow from subterranean springs.

A report was presented by Chief Burgomaster Jäger of Elberfeld on the question: What has been the result of the Law of March 18, 1868, on the Erection of Public Slaughter-Houses? As yet, no definite conclusions could be arrived at as to the operation of this law; but it had been ascertained from inquiries in Liegnitz and Solingen, as well as in Bavaria, Baden, Austria, etc., that the butchers had been able to bring forward no valid objections against the regulation of slaughtering. The further consideration of the question was deferred to the next meeting of the Association.

The Association appointed a Commission to examine each of the questions laid before the meeting, especially that of the statistics of lodgings, and to collect and arrange statistical matter. The meeting was then closed.

The Congress is to meet in 1875 in Munich.

OBSTETRICS AND GYNÆCOLOGY.

FANNY AND CHARRIER ON HYDRATE OF CHLORAL IN PUERPERAL ECLAMPSIA.—M. Fanny, in a thesis published in 1874 (*Revue des Sciences Médicales*, July), records several cases of puerperal eclampsia treated by chloral. The patients were admitted into the maternity wards of the Charité

and Cochin Hospitals. Hydrate of chloral was administered both internally by hypodermic injection, and was introduced into the stomach and rectum. In one case a subcutaneous injection of hydrate of chloral was given by means of a large Pravaz's syringe. Five hypodermic injections were given to this patient without any ill consequences to the subcutaneous cellular tissue.

The two following statistical statements are extracted from M. Fanny's thesis.

1. Chloral given after other preliminary treatment, bleeding, leeches, purgatives, revulsives, anæsthetics, etc.; women treated, 16; cured, 14; died, 2.

2. Chloral given alone: women treated, 20; lost sight of, 1; cured, 19.

The results obtained by the use of this agent are, therefore, very encouraging, and M. Fanny believes himself authorised to draw the following conclusions: Hydrate of chloral affords, at the present time, the best treatment for puerperal eclampsia. It is indicated not only when the attacks openly declare themselves, but also when any symptoms suggest coming trouble.

Dr. Charrier's case, published in the *Annales de Gynécologie* for Jan. 1874, is also strongly in favour of the use of chloral in puerperal eclampsia.

A young woman, the daughter of neuropathic parents, suffered two attacks of puerperal eclampsia, in the middle of the ninth month of her pregnancy. Two injections, each containing four grammes of chloral were given to her. On the occasion of a third but slight attack, a third injection of two grammes of chloral was administered. Dr. Charrier induced premature labour by dilating the os uteri by means of India-rubber bags filled with tepid water. The mother and child were in good health when this case was published. The child, when two months old, had three eclamptiform convulsive attacks; four small teaspoonfuls of syrup of chloral were given, and the attacks never reappeared. E. LAWSON.

ENGELMANN ON PROLAPSE OF THE UMBILICAL CORD.—Dr. Geo. Engelmann, of St. Louis, contributes to the *American Journal of Obstetrics*, August 4, 1874, a paper on this subject. He says that the causes of prolapse of the umbilical cord have mainly proved to be such circumstances as prevent the complete filling of the pelvic brim, and the close adaptation of the lower segment of the uterus to the presenting part. One of the more important of these circumstances is the shape of the foetal part itself, and thus foot-presentations are more frequently complicated by prolapse, whereas vertex presentations are least threatened. The foetal appendages are of secondary and minor importance; undue length of the cord, its marginal insertion or attachment of the placenta low down in the uterus, can never be direct cause of the accident; excess of liquor amnii is alone to be feared.

Some stress is to be laid on abnormality in shape and position of the womb, much more upon twin-births. More dangerous than any of these is the contracted pelvis, which Dr. Engelmann proved by measurements and numbers to be the main cause of prolapse of the funis, directly and indirectly. Primiparæ are, comparatively speaking, almost as frequently afflicted as multiparæ.

The *post mortem* examinations revealed only the lesions due to death from asphyxia, nothing characteristic for death caused by prolapse of the cord.

The prognosis is somewhat better than generally allowed; most favourable for foot-presentations, while vertex-presentations are more dangerous than any; the case being, under all circumstances, more threatening when occurring in a primipara.

In the treatment the postural method is important, more as an adjuvant, however, than as a method in itself of dealing with the prolapse.

Version is comparatively the most successful of all operations, and should be more frequently resorted to when any choice of method is given, as in head-presentations; the application of the forceps and reposition of the cord are less to be relied upon; but, whatever may be the course determined upon, it must be borne in mind that the success of all operations by which we seek the preservation of the child whose life is threatened by compression of the prolapsed cord is in a measure dependent upon the judicious use of chloroform, and its application to full surgical anaesthesia.

OPHTHALMOLOGY AND OTOLOGY.

SCHIESS-GENEUSEUS ON THE THERAPEUTICS OF MYOPIA.—The *Annales d'Oculistique* (July and August, 1874) contains a most interesting paper, which was written to show that the classic definition of myopia by Donders—to the effect that it is always associated with an elongation of the axis of the eye—is too restricted, although Donders at the same time allows that the higher degrees of myopia may be attended with spasm of the accommodation. To M. Dobrowolski is due the credit of showing that, in a large proportion of cases of myopia of low as well as of high degree, this factor or 'cramped accommodation' must be taken into consideration, and may be eliminated by the use of atropine; and both he and Liebreich have called attention to the apparent development of myopia in eyes which were undoubtedly hypermetropic. The result of a series of observations by Schiess-Gemuseus is to show that not only in emmetropia, but also in hypermetropia, a real myopia may be acquired. The maxim that myopia is incurable has become so deeply rooted, that all treatment is looked upon as of little value, and any opinion to the contrary carries but little weight. One difficulty which besets any treatment of the affection in its early days, is the absence in many instances of any subjective symptoms; for it is generally the friends of the myope who first notice any impediment to vision. The subjective symptoms, when they do appear, are well known—a certain aversion to light, and a feeling of uneasiness which at times amounts to actual pain; and these are associated with a spasm of the accommodation, with ciliary congestion, and with lacrymation. With the ophthalmoscope, a constant feature in commencing myopia is a decided redness of the optic disc, more especially on the nasal side, and with this hyperemia there may be some haziness of outline as well; at a later period these appearances will be followed by pigmentary changes in the surrounding choroid, which, when more advanced, will assume the well-known features of atrophic crescents. These same appearances have been noted by several in the eyes of hypermetropes, who work without any assistance from glasses. The author of this paper believes that

in these two opposite conditions of refraction, one and the same cause is at work—excessive action on the part of the ciliary muscle, and consequent congestion of the choroid and of the retina; so long as the mischief goes no further than congestion, the tissues may regain their natural appearance, but when structural change has once set in, this is no longer possible. It is probable that when the optic disc has become hyperemic there is some congestion of the choroid as well, but it is not then appreciable with the mirror, and it is not sufficient to cause any atrophic change. Distension of the veins, with a curvature of the arteries, is also met with in these early days of the affection; similar appearances may be seen in the asthenopia which is the outcome of hypermetropia.

Schiess-Gemuseus asserts that the commencement of myopia is associated with a spasm of the ciliary muscle, a condition which predisposes to sclerоchoroiditis, for it has been shown by Hensen and by Volkers that efforts in accommodation cause a real movement of the choroid; and all observers agree that during accommodation a larger quantity of blood is admitted within the eye—a condition in itself predisposing to inflammation, especially in young subjects. Why, however, the stress of the inflammation and the subsequent atrophy should fall upon the neighbourhood of the yellow spot, is not at all satisfactorily made out to the author's mind.

Granting the correctness of his assertion, that non-congenital myopia is generally associated with spasm of the accommodation, it is natural to suppose that the use of atropine would be attended with direct and very beneficial results, and this is so. The result of his observations is to support very conclusively the assertion of Dobrowolski, that a large percentage of cases of myopia of low degree are dependent upon ciliary spasm, and can be cured; that, in cases of high degree, the myopia will be very decidedly lessened; while there will still remain a certain number of cases where the myopia is extreme, and where the structural changes are so marked as to forbid the hope of any improvement from the use of atropine.

The result of this plan of treatment in one hundred and one myopic eyes was to show that spasm existed in eighty-five cases, while in fifteen cases no spasm could be detected. In one case, an amount of accommodation equal to one-eighth was released. These figures agree in the main with those published by Dobrowolski and by Hosche. In the slighter degrees of myopia, the effect of the treatment was more marked than in those of high degree. The use of atropine was persisted in for some weeks, and was generally accompanied with protective-glasses, and the observations were made and recorded when the accommodation and the pupil had regained their natural condition. The spasm did not reveal itself equally soon in all cases, nor did it yield with the same rapidity in every instance.

In his concluding remarks, the author warns us that we have no right to expect a specific against myopia in the sense that quinine is a specific for ague; but just as phthisis in all its forms was considered incurable, so it is unscientific to regard all cases of myopia as alike, and as incurable. The result of doing so has been that patients have resigned themselves to perpetual loss of vision, and that surgeons have contented themselves with stereotyped and half-hearted directions, which in many cases have been but half carried out. If the plan of

treatment by rest and atropine be tedious and irksome, yet, if the patient be made to understand the principle upon which it is recommended, he will in most instances readily allow himself to be placed under any discipline which holds out a reasonable hope of better sight.

SAVARY ON A CASE IN WHICH A FOREIGN BODY REMAINED FOR FIVE YEARS IN CONTACT WITH THE IRIS WITHOUT EXCITING SYMPATHETIC OPHTHALMIA IN THE OTHER EYE.—In the *Annales d'Oculistique*, July and August, 1874, Dr. Savary (du Mans) describes a case which occurred in his own practice, that of a French lady, aged fifty, who had met with a severe fall five years previously, her foot tripping upon a hard road. She was much injured by falling upon some flints. The left eye was seriously injured, but the exact nature or seat of the hurt was not very clearly made out, although she underwent much active treatment at the time; for four months there was continued pain, at the end of which the eye, while it retained its shape and form, was quite blind. After a period of three years the pain returned, and Madame R. sought further advice at the hands of a surgeon, who detected the presence of a foreign body within the eye, and who made an ineffectual attempt, though in what way is not clear, to remove it. After another fifteen months, and after much pain, Madame R. applied to Dr. Savary, who found the pupil of the left eye fixed by adhesions, and blocked up by pigmented membrane, through which the opaque lens could be made out. Within the anterior chamber was a greyish white substance, adherent behind to the iris, and in contact with the cornea in front. This substance filled the lower part of the chamber, and the cornea over it was hazy, and presented the mark of an old horizontal scar. The globe was soft and painful on pressure, and the ciliary congestion and intolerance of light were excessive. The right eye was in every respect normal.

The diagnosis was that, in all probability, a fragment of stone was imbedded in the anterior chamber, although it might well be that the case was one of cyst of the iris from excessive exudation; in either case some interference was called for, but there would very likely be a difference of opinion as to whether some attempt should be made to find and to remove the foreign body, or whether an abscission or even the removal of the entire eye was advisable. It was determined to search for the foreign body, although the dangers and the difficulties of operating upon a globe, which was disorganised by prolonged inflammation, were obvious, and not underrated. The attempt was, however, made, and without chloroform. The cornea was incised at the periphery, and a foreign body, encrusted with exudation, was readily detected, and extracted with the forceps. There was no prolapse of iris, and but a slight amount of bleeding into the chamber. The pain subsided in a few hours, and when the dressings were removed the following day, the wound was quite healed, and without undue reaction. At the end of a week the eye was quite quiet, and the patient was convalescent, and able to leave the hospital free from pain, and from all inconvenience, the eye of course, remaining quite blind. The question of determining the existence of a foreign body is surrounded with difficulty, and the writings of our foremost ophthalmic surgeons give very uncertain advice as to the proper course to pursue when there is only a probability that a foreign body

has remained within an injured eye. There are some who would wait the appearance of symptoms of irritation, while there are others who would at once remove an eye which was injured to a degree which would interfere with vision, quite apart from the existence of a foreign body within it. Probably these two extremes of treatment are unwise, but it must be allowed that even at this time very many cases of sympathetic ophthalmia are met with which might well be prevented.

BOWATER J. VERNON.

MISCELLANY.

TREATMENT OF HOOPING COUGH.—M. Maximin Legrand, in the course of an account of a visit to the Hospital St. Charles, at Nancy, published in *L'Union Médicale* for October 8, refers to the successful treatment of whooping cough and hysterical coughs generally by sulphurous treatment. M. Parisot, the head physician of the establishment, gave him particulars of the case of a child who, twelve days after the whooping cough had declared itself, was placed in a sulphur vapour bath and completely cured. Wherever M. Parisot sees that the cough is taking on a convulsive character, he has recourse to the sulphur vapour baths, and almost invariably overcomes this distressing symptom. Passing from science to art, M. Legrand dilates on the beauty of the old earthenware vessels used in the pharmacy of this hospital. They were, it appears, given to the institution by King Stanislaus, and are in the best style of French pottery, that of Louis XIV., the most beautiful and characteristic of all the peculiarly French styles. M. Legrand adds that the pharmacy is kept with the most perfect neatness and order, and the precious jars are valued as they deserve to be.

THE LONDON SCHOOL OF MEDICINE FOR WOMEN.—On October 12 was opened the London School of Medicine for Women. The council had determined that no inaugural address should be given, and thus the day passed unmarked otherwise than by the fact that the first lecture was given in a medical school devoted exclusively to the teaching of the female sex. The staff of the school is composed mostly of gentlemen who are lecturers in other medical schools, and the list comprises names of well-known reputation among the medical and other scientific professions. The school is now in full working order, and women can receive an education fitting them to practice medicine. The services obtained by the development of this school need not stop short at preparing women for the medical profession. There are several branches of science allied to the study of medicine, such as chemistry, botany, comparative anatomy, etc., in each of which a course of lectures is given as part of medical education. A knowledge of any one of these subjects is attainable equally by women as by men, and there is no reason why women should not achieve a scientific reputation and earn a fair competency by engaging in these studies, and by imparting their knowledge to others.

DISORGANISATION IN THE PUBLIC SERVICES.—The greatest discontent prevails at the present moment both in the army and navy medical departments. The army medical department is now very greatly below its strength of a few years ago; the members are, therefore, so hardly worked, that an officer returning from a foreign station is sometimes obliged to go straight to home duty without leave of absence. The result of Lord Cardwell's changes has been to mulct the medical officers in forage, band, and mess-allowance, and to detach them from regimental connections. One officer has, we believe, had to incur the cost of thirty removals in two years. There are assistant-surgeons of over sixteen years' service who remain still in

the same grade as on the day when they entered the army; promotion is at a stand-still, and the retirement pay is insufficient to induce senior men to go. There are also serious complaints of the deterioration of the army hospital corps. Mr. Hardy, therefore, has his hands full. The state of the naval medical service is still worse. There is an absolute dearth of candidates, and a chorus of discontent from one end of the service to the other. Matters have indeed reached a point at which it is felt that some change for the better must be made. There are sixty vacancies and no candidates. Four young surgeons who have recently entered the navy have rather submitted to court-martial than remain in the service, and have thus insisted on making an ignominious exit, after their resignations had been repeatedly tendered and refused on the ground that 'their services could not be spared.' In no other branches of the public service could such a state of things be tolerated by public opinion, and it cannot be permitted to endure in this.

MR. STANSFELD'S FACTS.—It might have been expected that Mr. Stansfeld would have taken some pains to master the facts before committing himself to the attack which he made at Bristol on the legislation of his colleagues, Mr. Bruce and Lord Northbrook. His speech, however, shows a reckless disregard of them. He declared the Acts to be a failure in their object of lessening enthetic disease and diminishing the ratio of invaliding in the army. A reference to facts shows that, whereas the number of men sent to hospital with the constitutional and virulent form of enthetic disease, from the troops quartered in the districts now subject to the Acts, was 120 per 1,000 of strength in 1866, it fell steadily through 1867-9, to fifty-four in 1870; while, in the districts which never have been subjected to the operation of the Acts, the ratio in 1866 was ninety-nine, and has risen through 1867-9 to 113. It is by passing over such facts as these, that Mr. Stansfeld is emboldened to call the Acts a failure. They were enacted to lessen the loss of military and naval strength, consequent on the amount of sickness from enthetic disease, which equalled 1,500 soldiers, and the entire crew of one of our largest ironclads constantly off duty. They have reduced, in spite of many obstacles, the more important form of disease to one-half.

His next fact, when analysed, amounts to this: that the women immigrating into the 'subjected district' are found to suffer in a proportion four times greater than that of those residing there; and his easy declamation against the vicious tendency of the Acts is to be met by the fact that the streets of the towns under the Acts are more free from abandoned women enticing young men, than those of any other towns in England; that the number of such women in those towns has decreased from 3,400 to 2,100, and that 940 houses of ill-fame have been closed. Clandestine prostitution has been almost suppressed; and this has been made, strange to say, the subject of public and formal complaint by Mr. Stansfeld's female allies.

The close examination of the facts, indeed, tends to show more and more that these Acts are deserving of the most hearty public approbation, and have rendered the most important public service.

LONDON MILK.—Insufficient notice has been taken of the complaint recently made by the more respectable milk dealers to the London vestries, of the impunity in adulteration still largely accorded to the sale of adulterated milk by fraudulent dealers. We pointed out some time ago, and more than once, that the medical officer and inspectors almost exclusively confine their attention to the milk sold over the counter, while the public are most interested in the milk delivered at their houses. Few milk dealers are so unwary as to put adulterated milk on the counter. Almost as few, we imagine, supply unadulterated milk to their customers. The customary dodge of the milkman on his rounds is to refuse to sell milk to a chance customer, for fear that he should be the emissary of a sanitary inspector; but there are means of getting

over the difficulty. There are proper places for the activity of milk-inspectors which would be found very effective, in the streets, the railways, and the workhouses. We make bold to say that at least fifty per cent of the milk supplied at London houses, and of the milk sold by wholesale country dealers to small retail dealers at the railway stations, and supplied to workhouses, is adulterated. In connection with the milk tolerated, and even encouraged, at many public institutions, we may mention that the managing director of the Aylesbury Dairy Company has stated that he has repeatedly refused invitations to tender for the milk-supply, certain of knowing that the average price paid by such institutions is less than that of good country milk at the farms, and that the contracts were in fact, then entrusted to unscrupulous dealers to supply adulterated milk on a large scale with impunity. It will be remembered that the latest report on the milk-supply of the great metropolitan hospitals, which appeared some time since in the *British Medical Journal*, showed that every one of them was supplied with milk which had been either watered or skimmed, and in several cases subject to both operations; while Mr. J. A. Wanklyn's report to Mr. Roussel, superintendent of contracts, showed that the workhouses and public infirmaries were pretty uniformly in the same predicament. In this connection, it may be well to recall the well-established fact that the lactometer is an instrument perfectly useless for establishing the purity or quality of milk, and that the estimation of milk-solids, now a very easy and expeditious chemical process, is the only reliable test.

FEEDING-BOTTLES.

We have received from Mr. Mather, of Bath, one of the 'Princess' feeding-bottles, mentioned by Dr. Eustace Smith in his article upon 'Feeding-Bottles' in the *SANITARY RECORD* of September 19, as a bottle 'which, for elegance of design and accuracy of detail, cannot be surpassed.'

A careful inspection of this useful invention convinces us that it is simple and ingenious in its construction, and thoroughly adapted for the purpose to which it is to be applied.

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The London Medical Record.

WEDNESDAY, NOVEMBER 4, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

VULPIAN ON THE VASO-MOTOR NERVES.

The lectures given last year by M. Vulpian at the Paris Faculty of Medicine on the vaso-motor nerves, have been recently published in a collected form by M. Baillière of Paris, under the title of *Leçons sur l'Appareil Vaso-moteur, Physiologie et Pathologie*.

These lectures contain but few original theories, but are therefore, perhaps, all the more instructive. M. Vulpian has, according to his own account, set himself to examine the results announced by others, and while pursuing this examination with the sincere love of truth, it has been his task to often refute the most seductive systems. The subject he has chosen is one of the most interesting to the medical profession. As a matter of fact the principal function of the vaso-motor nerves is to regulate the distribution of nutritive fluids among the tissues. When these nerves are stimulated, the vessels to which they are supplied contract, and by this means the blood which flows from the surface of a wound can be diminished or even stopped. Under the contrary condition, the vessels become dilated, the hæmorrhage is more considerable, and the venous character of the blood is less marked throughout the tissues. It would undoubtedly be very useful for a surgeon to be able at his will to excite or paralyse the vaso-motor nerves, and thus change the conditions of the circulation in any desired part of the body. By this means he could at pleasure remove hæmorrhagic congestions and fluxions; he would have unlimited control over the nutritive changes, so as to increase them at one point and lessen them in another.

It has been asserted that direct and continuous electric currents, differing in this respect from induced and interrupted currents, may afford this twofold power of dilating or contracting the vessels according to the direction in which the current is made to travel. This theory has been brought forward most especially by the late M. Legros. M. Vulpian's researches, however, have led to a diametrically opposite result. He affirms that the different kinds of current act in the same, or nearly the same manner, on the vaso-motor nerves. According to the researches of MM. Legros and Onimus, when a galvanic current is passed along a nerve containing vaso-motor fibres, the ascending currents, that is to say, those currents in which the negative pole is placed near the centre, and the positive pole near the periphery, cause contraction of the vessels; whereas the descending currents, or those where the position of the poles is the reverse of the preceding, cause dilatation. The experiments, however, on the web of the frog's foot, which were repeated with M. Carville under the most favourable conditions, were not attended by the expected results. When the

lumbar nerves of a frog were electrified, the continuous currents either produced in the web of the foot the same results as the interrupted current, only less marked, or they had no effect whatever. The descending currents appeared never to produce any vascular dilatation. In M. Vulpian's experiments, these currents induced contraction of the vessels with more certainty than did the inverse currents.

As to the experiments in which MM. Legros and Onimus passed continuous currents through the skin and the subjacent parts, it is evident, M. Vulpian says, that they cannot be greatly depended on to prove that a current of one kind acts on the vaso-motor nerves and makes the vessels contract, whilst currents of another kind acting on these same nerves produce dilatation of the same vessels. Not only is there no warrant for believing that the nerves are thus acted upon, but it is clear that all the tissues included in the course of the current are excited, those of the skin among others; and that this excitation of the tissues may provoke reflex dilatation of the vessels, which greatly complicates the result. In order to demonstrate that the currents thus employed directly produce dilatation or contraction in any part of the body through the medium of the vaso-motor nerves, it would be necessary to previously separate these nerves from the nerve-centres, or else to cut all the excito-motor fibres of that region, so as to prevent any intervention of reflex vascular action.

Thus it is impossible to dilate the vessels by the direct action of continuous currents on the vaso-motor nerves. Whatever may be the direction of the current, whether from the periphery to the centre or from the centre to the periphery, from the moment the currents operate, always supposing they are applied to the nerve itself, they produce excitement and cause the vessels to contract, in the same way as they would under the influence of an induced and interrupted current.

As to the secondary and indirect dilatations of these vessels, their mechanism is as yet very imperfectly understood. They have been included in the category of reflex action; but very little is known at present as to the way in which they are produced. Whether they are active or passive is a controverted question.

Indeed, reflex actions, as they are understood at the present time, are of many different kinds. They include the different influences which pass from nerve to nerve, which were formerly called sympathetic actions, automatic movements, the active phenomena of animal life, etc.

The word reflex has been adopted to represent the hypothesis of a nervous current reflecting itself on a central point, like the refraction of a ray of light on a mirror, and, so to speak, following an angle of incidence which determines its direction. In this hypothesis, a nervous wave once reaching the centre by a nerve-filament may by repercussion depart by another, and reach a more or less near or distant organ. Reflex action exists when this wave has been transmitted by a sensory nerve, and returns in the track of a motor nerve. This is the simplest of all cases, and one that has been especially studied by M. Claude Bernard. The explanation of these phenomena seems to be thoroughly satisfactory, being in accordance with the most elementary notions of physiology and mechanics.

When sensory and motor filaments are united in a part of their course so as to constitute one and the same nerve, originating at the same level from

the same centre, and reaching the same region of the periphery, it is easy to understand how they form a nerve-pair, along which a fluid resembling electricity can be transmitted from end to end. This is, in fact, explained by the laws which preside over the movements of inanimate bodies. The conception becomes more complex if we imagine a sensory action which takes a longer course across the centre, and, finding itself in the company of several motor nerves, chooses, as though by an elective preference, one path rather than another.

This idea becomes still more complicated when phenomena which may be explained by a kind of mechanical repercussion, or a purely physical transmission of the nervous wave, terminate in correlated action; as happens, for instance, when frogs and ducks cry out and jump from reflex action after they are decapitated.

After all, however, this is not where the difficulty lies. The signification of the word *reflex*, used with reference to movement, is always intelligible. The expression 'reflex neuralgia,' however, is also admitted, which signifies the action of one sensitive nerve on another. This is an instance of what our predecessors called sympathy; and the change of terms does not seem to throw much light on the subject. In fact, it is no longer a question of nerve-fibre. We must in the first instance suppose that the current of a sensory nerve can, in some instances, take a different course from the one which it takes generally; and that from centripetal it can become centrifugal. This current, starting from the periphery, and passing along a sensory nerve, having reached the nervous centres, instead of remaining there, or passing on to a motor nerve, even though the way is clear, chooses another sensitive nerve. Here it is reflected afresh, either in the course of its journey by the influence of other currents proceeding from the periphery, which come into collision with it, or else at the extremity of the nerve, where it cannot stop, but takes another direction, terminating the second time in the nerve-centre.

If we admit that this explanation is intelligible we cannot say that it is simple, and much less so when it is a question of the succeeding class, that of reflex paralysis.

Reflex paralysis is a somewhat contradictory term, for it is certain that it cannot be intended to describe a state of inaction, or a negative action which can itself be reflected. It is the *reflection* of an action which produces this inaction. If the explanation of reflex neuralgia, given above, be accepted, it is easy to understand that two currents moving at the same time in opposite directions along a nerve, may be arrested by the influence they exercise on each other, and that a paralysis of sensation may be the result.

E. LAWSON.

PELLIZZARI, TOMMASI, PERRONCITO, LEWIS,
COBBOLD AND GIACOMINI ON CYSTICERCI.

(Continued from page 642.)

Before proceeding to give a definitive answer to Perroncito's question respecting the causes of the frequency of tapeworm in Italy, it may be as well to refer to the recent *brochure* by Dr. Giacomini.* This author appears to have had no opportunity of perus-

ing Pellizzari's communication already cited, and consequently it is not surprising that he should, in common with others, have accepted the conclusions of Perroncito. The respective contributions of these authors were probably made public about the same date. Be that as it may, Giacomini clearly perceives that, whatever precautions of a hygienic character are suitable for the prevention of disease arising out of the consumption of measly pork, the same, or at all events similar, measures ought to be adopted with the view of checking tapeworm affections arising from the ingestion of other kinds of meat, especially veal and beef. Like Pellizzari, he is satisfied as to the human origin of the small bladder-worms found in cattle, and establishes this position not only from the oft-quoted experiments of Leuckart and Mosler, but also from those conducted by Cobbold and Simonds in England, and by Professor F. Saint-Cyr in France. From a careful review and consideration of all the facts of the case, he recommends a more complete supervision (*una sorveglianza maggiore*) over the flesh of oxen before it is employed commercially, and greater precaution when employing veal as food, by causing it to be subjected to a high temperature, in order that the parasites may be killed before it is ingested. It is evident that Giacomini thinks that a temperature exceeding that of boiling-point is necessary for the destruction of the beef and veal measles, since he immediately adds: 'Though experiments have not been made with the object of ascertaining the amount of resistance of heat which the unarmed cysticercus can bear, yet, judging by those conducted by Professor Perroncito on the measles of the hog, we are in a position to say that a temperature of 135° Cent. (275° Fahr.) is necessary for the destruction of an isolated cysticercus, whilst the heat should be raised from 150° to 200° Cent. (302° to 392° Fahr.) for ten or fifteen minutes, in order to ensure the complete destruction of the cysticerci encapsuled in the interior of a piece of meat.' We have freely translated and abridged this portion of Giacomini's text, because his statements are pretty much the same as those we have already quoted from Perroncito, as cited by Tommasi. But, in the next place, Dr. Giacomini must permit us to say that he is in error, quite unintentionally no doubt, when he states that experiments have not been performed on the cysticerci of the ox. So far from this being the case, our Italian friends must be told that, valuable as are the results they have obtained in this connection, similar experiments on temperature were long previously conducted by our countryman, Dr. Lewis; and these researches had quite as much to do with the measles or cysticerci of beef as they had with those of the hog, if not more. Naturally but, few foreign investigators can have had access to the work in which Lewis's experiments were originally recorded, and to which therefore we are in duty bound to call their attention.* Thus, also, Tommasi, whose excellent translation of Cobbold's *Manual* does him much credit, has fallen into the error of supposing that the investigations of Lewis were made in England; although, from the text of some portions of his own edition of that work, it might have been inferred that the researches were made in India. It is of very little moment where the experiments were carried on,

* Sul *Cysticercus cellulosæ hominis* e sulla *Tænia medio-canellata*, contributo allo studio dei Cestoidi Parassiti dell' Uomo; del Dott. Carlo Giacomini. Torino; 1874.

* 'A Report on the Bladder-Worms found in Beef and Pork.' By T. R. Lewis, M.B. [Being Appendix B, in the 'Eighth Annual Report of the Sanitary Commissioner with the Government of India.' Calcutta; 1872.]

but Tommasi's statement (appendix, *loc. cit.* p. 161), wherein he says that Pellizzari's experiments, in which he himself took part (*ai quali io stesso ho assistito*), are even more complete than those made in England by Dr. Lewis, and in Germany by Dr. Küchenmeister, cannot be allowed to pass unchallenged. If Tommasi had enjoyed the opportunity of consulting Lewis's original memoir, we feel sure, from his evident candour, that he would not in any measure have under-estimated the extent of our countryman's labours. The memoir by Lewis is singularly complete, also of great length, and well-nigh exhausts all the facts that can have any interest in relation to the question of public health as affected by parasitically diseased meats, especially those of beef and pork. Towards the close of his essay he expressly states, as the result of investigation: (1) 'That exposure to a temperature of 120° Fahr. for five minutes will not destroy life in cysticerci, but that they may continue to manifest indications of life for at least two or three days after such exposure; (2) That exposure to a temperature of 125° Fahr. for five minutes does not kill them; but (3) after being subjected to a temperature of 130° Fahr., for five minutes, they may be considered to have perished. After exposure to this and higher temperatures, in no instance have I been able (he adds) to satisfy myself that the slightest movements took place in their substance when examined even under a high power. At least, it may be confidently asserted that, after exposure for five minutes to a temperature of 135° to 140° Fahr., life in these parasites may be considered as absolutely extinct' (p. 139). Thus we find the explicit statements of Lewis and Pellizzari in perfect accord; and seeing that their conclusions are alike the result of very careful and independent inquiry, conducted, moreover, with equal skill, it only remains for us, so far as this particular phase of the subject is concerned, to say that the question at issue is finally solved. These investigations make it perfectly clear that cysticerci of all kinds, whether found in veal, beef, or pork, cannot retain their vitality when exposed to a temperature of 60° Centigrade, or, in other words, 140° Fahr.

Having disposed of the prime question relating to the sanitary importance of the study of the cysticerci, it yet remains for us to refer to other points of scarcely less practical significance. In the first place, there is the subsidiary question raised by Perroncito as to the causes still operating to render tapeworms almost endemically prevalent in certain countries, even in those where so many admirable hygienic measures are known to be in full operation. Again, however, we must so far trespass on our reader's patience as to defer our remarks on this head to a future number, at the same time adding that many other interesting particulars, more or less intimately associated with the life-history and distribution of the cysticerci, yet remain to be discussed.

(To be continued.)

TRICHINOSIS has lately caused fifty-two deaths at Linden, near Hanover—thirty-four in males, and eighteen in females.

THE GERMAN CHOLERA CONFERENCE in Berlin held its concluding meeting on October 20. The proceedings are in the hands of Professors von Pettenkofer and Hirsch, for arrangement and publication.

ON THE TREATMENT BY MINERAL WATERS OF CHRONIC DISEASES, AND ON THE PRINCIPAL SOURCES ADAPTED TO THE VARIOUS MORBID CONDITIONS. BY M. GUBLER.*

(Continued from page 676.)

VI. Affections of the Genito-urinary Organs.

I shall commence with the affections common to both sexes, vesical catarrh, blennorrhœa in man and leucorrhœa in woman. The first thing is, to treat by appropriate waters the general condition of the system on which they depend, as chlorosis or anæmia, scrofula, dartre, or syphilis; but local treatment is also required.

Topical injections with the aid of the ordinary irrigator, or better with Wickham's speculum, are employed: 1. To clear the surfaces; 2. To soothe the remains of inflammation; 3. To astringe the tissues; 4. To neutralise the acidity of the urethro-vaginal pus; 5. To destroy the lower organisms which breed in the secretions. The first indication can be obtained with any water, the next with any tepid soft indifferent water. Astringency is obtained from the sulphate of iron and alum waters. The common lime and alkaline waters act as absorbents. The bituminous sulphurous waters, and those which contain alkaline sulphites and hyposulphites, in short, those which are termed degenerated sulphur waters, I conceive to have a special antizymotic action on the secretions.

Thus, Ussat and Pougues, which are used for leucorrhœa, are strong calcareous waters; Remollon, Saint-Alban, and Saint-Nectaire might render similar service, being rich in lime; while the alkalinity of the Vichy waters accounts for their successful use in uterine complaints. Many feeble degenerated sulphur waters are much employed, as Saint-Sauveur, Eaux Chaudes, Moltig, and Olette. One may recommend on the same ground La Preste, Aix, and Luchon. But the sulpho-bituminous waters of Euzet and Saint-Boès are still more efficacious in leucorrhœas, kept up by the darts habit. Sterility, a condition common to both sexes, may depend on various very different anatomical conditions. In the male, aspermia from cryptorchidia, from absence of or from injury of the testicles, the retention of the semen by obliteration of the different canals, or spermatorrhœa with its disastrous consequences, may be the cause. In the female, the absence of ovules, the congenital absence of ovaries, or temporary sterility caused by polysarcia, or an obstacle to the passage of the germs from the ovaries, or an obstacle to their meeting the fecundating fluid, caused by catarrh of the neck of the uterus, are the commonest causes. It is evident, that no one method of treatment can suit all these varied conditions; yet every station, in Germany in particular, has a *Bubenquelle*, which renders ladies fertile. The fact is, a young woman every now and then becomes a mother, after the use of a course of mineral waters. Are we, like Trousseau, to attribute this mainly to change of life, or to consider it a matter of chance? I reckon it unfair not to give the waters credit for a power of removing some causes of sterility. Male impotence and pollutions can be treated successfully by hydrotherapy, sea-bathing, tonic and restorative waters of any sort. Good

* *Journal de Thérapeutique*, no 10 et seq.

results have been got at Lamalou, at Bourbonne, in the Pyrenees, and in Auvergne. In the opposite sex, the return to fecundity may be the result of the natural treatment of obesity, of anæmia, of want of innervation, of the removal of obstacles which opposed themselves to the maturation of the ova, or to their impregnation. How many wives have become mothers after sea-bathing, or courses of steel-waters, or after having some mucous obstruction of the neck or of the cavity of the uterus, removed by sea or salt or sulphurous waters! We know already what waters suit best most of these conditions, including catarrh of the genital organs; but we have still something to say on amenorrhœa, dysmenorrhœa, chronic metritis, and periuterine engorgements.

Torpid amenorrhœa requires the waters suitable for the chlorotic and the anæmic, steel, sulphur, chloride of sodium, simple and complex, and especially the latter, when they contain iron. I may cite Spa, Forges, Gréoulx, Luchon, Vic sur Cère, Chateaufort, Saint-Nectaire, etc., and I must not forget Saint-Moritz, which owes much to its elevation.

Dysmenorrhœa, when painful, membranous, or even menorrhagic, when of congestive origin, with or without general plethoric condition, requires entirely different remedies. I should recommend Vals with its strong baths, and the internal use of some of its weaker alkaline waters, or baths at Vichy, with the internal use of small quantities of the waters. Or a bath of indifferent water of moderate temperature may answer quite well, as Aix en Provence, Bagnères de Bigorre, Bagnoles de l'Orne, Ussat, or indifferent waters of a higher temperature, as Plombières, Bains, Luxeuil, Dax, Nèris.

For all menorrhagias, including passive ones, we prescribe restorative iron waters, and especially the sulphated and mixed sulphated, the Source Galtier at Cransac, Dominique and Saint-Louis at Vals, Auteuil, and Passy.

In chronic metritis, the general condition of the patient is sometimes more important than the local lesion, and it may be better to endeavour to get up the general condition, rather than to operate directly on the uterine congestion. Thus one would order, according to the case, steel waters, gaseous or non-gaseous, or containing all the neutral salts of the serum, and also bear in view any strumous, any dartrous, or syphilitic taint. Only one must select waters that are not very stimulant, and the topical application of which could be easily borne.

Scrofulous patients may be sent to Balaruc, Lamotte, Bourbon l'Archambault, Bourbon Lancy, or to Saint-Nectaire, where there are douches of carbonic acid, as at Couzan and Saint-Alban, and sometimes to sulphur-waters, but best of all, to those of Gréoulx, which contain a considerable amount of chloride of sodium and a notable proportion of sodium and bromine.

The waters of Gréoulx also answer, when there is any cutaneous affection. If in such cases there be also a tendency to any local or general inflammatory action, then the mild sulphur-waters of Eaux Chaudes (Source de l'Esqurette), Saint-Sauveur, and especially the more alkaline waters of the Eastern Pyrenees, Moltig, Olette, La Preste, are to be preferred.

When there are any indications of gout, we may prescribe the alkaline waters, but if there be no special complication, we may content ourselves with such harmless waters as those of Dax, Evaux, Nèris, Plombières, and others.

[Here, too, M. Gubler ignores entirely all the German iron waters, also the Austrian ones of Marienbad and Franzensbad, of much service in uterine congestions, and the systematic treatment at such salt-baths as Kreuznach, Nauheim, and others. France is perfectly well off for indifferent and for sulphur waters, and has admirable establishments at Plombières, Nèris, Bagnères de Bigorre, Cauterêts and Luchon. I should say, that the sulphated waters can find but a very limited application, just as the waters of Sandrock in the Isle of Wight are entirely forgotten. We in England scarcely understand what darte and herpetism are,—a sort of diathesis always in the mind of Frenchmen.—Tr.]

VII. *The Treatment of Neuropathies.*

The affections of the sensitive motor system to be now mentioned, occur usually among young women, and are chiefly treated at the stations for uterine affections. I mean painful or spasmodic affections of moderate violence, which usually are classed under the name of hysterical. This condition is almost always connected with general debility, loss of tone, anæmia, and chlorosis. Our first object therefore ought to be, to improve the general health and strength of the patients, by food, climate, exercise, hydrotherapy, sea-bathing, saline waters, iron waters, and those at once iron and saline. But sometimes these remedies cannot be borne by irritable constitutions, and then we must have recourse to more soothing measures.

Painful neuroses and neuralgias, gastric, hepatic, uterine or vesical, and spasmodic neuroses; also slight tic, palpitation, spasm of the œsophagus, cramps of stomach, or of the uterus, dysuria, and other manifestations of the disordered nervous system, are to be met by the sedative action of the tepid slightly-mineralised waters—Moltig, with its Bain des Délices, Saint-Sauveur, Eaux-Chaudes, Nèris, Encausse, Ussat, Bagnères de Bigorre. In such cases we make use of very prolonged baths. The internal use of such feebly mineralised waters is entirely secondary.

VIII. *Treatment of Affections of the Digestive Canal.*

Painful dyspepsia seems to require carbonated waters, such as those of Couzan or Saint-Alban, to soothe it. Nevertheless, as gastralgia is sometimes the consequence of irritation of the mucous membrane of the stomach, or the expression of a diathesis, other waters may be employed with advantage. There are, on the one side, absorbent antacid alkaline ones, as Vals and Vichy, and carbonated lime ones, as Saint-Alban, Alet, Rémollon, etc.; on the other hand, the waters used in the thermal cure of rheumatism, such as those of Plombières, and the very hot waters. Atonic dyspepsia, with its indigestion, pyrosis, and flatulence, is often the result of general weakness and anæmia. Sometimes a restorative course of iron waters will be the best means of restoring the digestion. But on the whole, carbonated waters, with a large supply of carbonic acid, with bicarbonate of soda, and neutral salts, such as Le Cayla, Spa (?) Prugnes, Vic sur Cère, Saint-Nectaire, etc. Gastric acidity and flatulence, the ordinary results of bad digestion, do not require any special waters. But they may be kept under by the use of absorbents and warm local applications, or by avoiding the use of too gaseous drinks.

Dyspepsia, connected with the lithic acid diathesis, is best combated with the alkaline waters of Vals and Noyrac, which have establishments, or at home by those of Marcols. The waters of Royat, Rouzat, and Saint-Nectaire, are equally suitable, on account of the presence of carbonate of soda and of lithia.

Rheumatic dyspepsia can be well treated at Plombières, Bains, Luxeuil, Chaudes Aigues, Dax, Aix-les-Bains, and at other stations with very hot waters: dartsous dyspepsia by arsenical and sulphur waters. The varied mineralisation of Sylvanès adapts it for such cases.

Irritative dyspepsia, amounting at times almost to gastritis, requires the weaker alkaline waters of Vals, those of Soultzmat, the lime ones, containing little gas, of Alet, Foncirque, Rémollon, or the indifferent ones of Bagnoles (Orne), or of Evian, or Amphion. Waters rendered emollient by the quantity of organic matter which they contain, will have the same effect, such as the Source Hôpital at Vichy, or Moltig in the Eastern Pyrenees.

Catarrhal dyspepsia is to be treated by weak aperient waters at Brides, Plan-de-Phazy, or at Andabre, Chatel Guyon, Saint-Gervais, etc., unless it depends on some specific diathesis, which it might be necessary to modify in the first instance.

Affections of the intestines that may be treated with mineral waters, are habitual constipation, neuralgia of the bowels, and chronic diarrhœa. Habitual constipation is usually relieved by the aperient waters which I have just enumerated, but the results are seldom permanent. Sometimes a more permanent cure may follow a stimulant or tonic course of iron, or chloride of sodium waters.

Enteralgia only yields to the external application of the very hot waters, without reference to their mineralisation.

The same class of waters may be used for chronic diarrhœa—as the rationale of their treatment is, to derive from the bowels to the surface, by the use of very hot waters. At their head comes Plombières, and after it Bagnères de Bigorre, Bains, Bourbon Lancy, Luxeuil, Ussat, and several others.

If the diarrhœa be kept up by a general condition, such as hydræmia, too small a supply of blood-corpuscles, too much albumen in the blood, with or without albuminuria, then we must have recourse to the warm saline iron waters, in order to enrich the serum and diminish the tendency to serous exhalations. Carlsbad enjoys a high repute in such cases; nevertheless Saint-Nectaire, already often mentioned, is superior to it in varied mineralisation, and is not so purgative. After it I place Saint-Maurice, Chateaufort, and lower, on account of the absence of carbonate of soda, Chatel Guyon. When there are intestinal ulcerations, we must have recourse to detersive and cicatrising waters, containing sulphur and iodine. The sulphur waters of La Preste, Olette, Moltig, no doubt would produce good effects. The especially silicated spring Mauhourat at Cauterêts, appears destined to be of good service in chronic irritation of the mucous membrane of the intestines, and in the sequelæ of dysentery. It ought to be the same with the waters of Challes—but Gréoulx ought to be superior to all waters in repairing ulcerations of the intestines.

[A good water for chronic diarrhœa is certainly a desideratum. Plombières has put forward pretty strong evidence of its efficacy. I do not see why our own Bath should not be better than many of the

foreign earthy waters. The waters of the Mauhourat at Cauterêts have been successful in curing enteralgia, but it is a question whether their trifling amount of silicates has anything to do with this. Challes and Gréoulx, particularly the first, are remarkable waters, but we have no evidence of their being used in diarrhœa. It is fair to expect a good deal from Saint-Nectaire, without going the length of seeing how it supplies the blood with all the elements it wants. My impression is, that in this section M. Gubler describes rather results that have been hoped for, than obtained.—Tr.]

IX. *Treatment of Affections of the Liver.*

Many morbid conditions of the liver are ameliorated or cured by the use of mineral waters; for instance, biliary concretions and hepatic colics, the chronic inflammations of the liver, which are so common in tropical lands, the varied changes of the organ, such as the ordinary enlargement of the gland, retention of bile, stasis of blood, hyperplasia of the connective tissue, the effects of old inflammations or even suppurations, all going under the name of liver-cakes or Indian livers, but of far more varied nature than simple hypertrophy.

Two great baths, Carlsbad and Vichy, have almost a monopoly of liver-cases. In reality, they are not both suited for the same forms of disease, and each should have special cases selected for it. The interests of the two great rival baths are not irreconcilable, and it ought to be possible to select cases suited for strong alkaline waters, and others for the more complex alkaline waters, containing some chloride of sodium and sulphate of soda. The following are my views on the subject. Suppose a woman with a tendency to biliary concretions, fat and belonging to a gouty family, who has already had some pain in her liver, with a suspicion of jaundice, with urine for the time containing bile, but otherwise in fair health, the strong alkaline waters of Vichy or of Vals answer for such a case.

On the contrary, if there be obstruction of the gall-ducts, and the patient have already had repeated attacks of hepatic colic and jaundice, or if there be any permanent retention of bile, with enlarged liver, and with failure of general health, then I prefer Carlsbad, or one of the mixed waters in the centre of France, Saint-Nectaire, Saint-Maurice, Saint-Myon, etc. Saint-Nectaire would be equivalent to Carlsbad, if its waters only contained a little more sulphate of soda, and were thus more distinctly aperient; and this defect is easily remedied by adding a little magnesia, or a glass of bitter water, or of the *eau verte* of Montmirail.

To tell the truth, if we only wanted simple cathartic and dialytic effects, we might be contented with passing a season at Brides, Chatel Guyon, or Santenay, and going to drink afterwards at Vals or Vichy. I have frequently recommended this. But there is something special in the complex elements of the waters of Saint-Nectaire and of Carlsbad, which makes them indispensable for patients who have reached the stage of cachexy, and are already weak and anæmic, and who require restorative as well as resolutive waters. As to chronic enlargements of the liver, which are only developed as a consequence of dysenteric ulceration, or of intermittent fevers, they require the carbonate of soda and chloride of sodium waters, more than strong alkaline ones, on account of the grave disturbance of the general health.

Slightly purgative effects may be got from some of

the strong chloride of sodium waters, such as those of Balaruc or Bourbonne, or from the dissolving action of some weak alkaline waters. La Preste, in the Eastern Pyrenees, has a great name in such cases, and is resorted to by all our marine officers, to reduce the enlarged livers they have contracted in Senegal or in Cochinchina. The alkalo-ferruginous source of Boulou and of Marcols might be used in like manner, but only the first of the two has an establishment.

If, however, the patient be very feeble, and it be considered sufficient to dilute the secretions in general, and the bile in particular, some of the indifferent waters will do, as Evian, or some a little more mineralised, as Contréville, Vittel, Martigny, and Prugnes.

If we have to do with a primary hepatalgia or a neuralgia of the liver, where there is only a suspicion of biliary concretions, then a high temperature is to be sought in the waters of Plombières, Bains, Bagnoles, Rennes, etc., applied exteriorly in stimulant baths, and in revulsive douches.

[There is here no mention of Marienbad, though not German, any more than Carlsbad, nor of the Swiss Tarasp, both valuable in engorgements of the liver. Under this head, too, and that of dyspepsia, Kissingen, Homburg, Wiesbaden, and a host of springs, have been omitted. The successful action of the hot but feebly mineralised springs of La Preste on tropical livers, deserves further investigation. There is a parallel in the case of Weilbach and Nenndorf, cold sulphur-springs, but somewhat more highly mineralised than La Preste. M. Gubler has done what no German could do; he has discussed affections of the digestive canal and of the liver, without referring to abdominal plethora, or to hæmorrhoidal congestion.—*Tr.*]

J. MACPHERSON, M.D.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

WEGNER ON THE NORMAL AND PATHOLOGICAL GROWTH OF THE LONG BONES.—In the *Archiv für Pathologische Anatomie und Physiologie*, part i. 1874, Wegner defends the theories of John Hunter, Duhamel, Flourens, and others, from the attacks of Dr. J. Wolff. The first question which Dr. Wegner discusses is, Is there or is there not, in the developed tissue, an interstitial growth? He remarks that it must be well understood that the question refers exclusively to the fully formed osseous tissue. No one has directly even observed such an interstitial growth. Ruge's endeavours to demonstrate such a process by the aid of the microscope, merely show that the osseous corpuscles differ somewhat as regards size and distance from each other, at different periods, but do not prove interstitial processes in the formed osseous tissue. A great difficulty in applying the apposition theory to the growth of the lower jaw, arose from the circumstance that too little weight was attached to Hunter's postulated absorption upon the surface of the bones, and because nothing was seen of the processes of resorption. At present we know, from Lieberkühn's experiments with madder, that at the anterior edge of the coronoid process a continual resorption takes place in the growing animal, which is strikingly proved by Humphry's ingenious experiments (*Transactions of the Cambridge Philosophical Society*, vol. xiv).

Wegner found that the bones of dogs and rabbits fed for some time on phosphorus are best adapted for the purpose. The process of external resorption is best seen on the posterior surface of the lower end of the femur, where, in the rabbit, a resorption-surface is seen occupying the whole circumference immediately above the condyles.

Wegner repeated the well-known experiments of J. Hunter on eighty animals—dogs, rabbits, cats and fowls. Dogs and cats are less adapted for this purpose, as suppuration usually supervenes after the operation, and also because the osseous substance in young individuals is too soft to hold the nails. The first series of experiments consisted in driving, at measured distances, several nails into the middle portion of the diaphysis of the tibia or femur, in such a manner that their surface was at the same level as that of the bone. After some months, the animals were killed and the intervals between the nails again measured, when in not one instance had the intervals changed in a measurable degree. In some few instances, in fowls, the distance had increased, but it had also diminished in some, owing no doubt to pathological changes.

The whole series of arguments advanced as indirectly supporting the theory of interstitial growth were to refute at the same time the apposition theory. Dr. Wegner thinks that an interstitial expansion of the developed osseous tissue does not take place, but that the absorption-processes are everywhere visible and demonstrable; that the change in the form of the lower jaw, the shifting of the bony projections, etc., are pathological formations (exostoses and pararticular callus); and finally, that the stability of the architecture of the bones is perfectly compatible with the apposition theory. Nothing can be indirectly advanced against it, and in favour of it the proofs are many and positive.

All the experiments, says the author, tend to show that the growth in length of the cylindrical bones proceeds from the epiphysal ends. In harmony with this are the results of feeding with phosphorus. Whilst during the feeding with madder the last deposited layer appears red at the intermediary cartilage, it becomes dense and compact during the feeding with phosphorus, instead of spongy; and if the phosphorus be omitted for a certain time, there immediately appears at the intermediate disc a layer of common spongy substance. If now the phosphorus feeding be recommenced, alternate layers of spongy and compact tissue will be found. Pathological observations also support the apposition and resorption theories; e.g., the interrupted growth after premature synostosis of the cranial sutures, etc. Dr. Wegner concludes a long paper, which is only the first part of his intended communication, by affirming that his numerous experiments bear out to the fullest extent the observations of all authors except Dr. Wolff, to the effect that the growth of long bones is effected by way of apposition and resorption, and that the interstitial interpretation of Dr. Wolff is entirely erroneous. H. A. REEVES.

ONIMUS ON THE EFFECT OF ELECTRICITY ON THE SPAWN OF THE FROG.—M. Onimus, in a recent communication to the Société de Biologie, of Paris, states that by electrifying the eggs of the frog, the development of those which are in connection with the negative pole will be accelerated, whilst the hatching of those in connection with the positive pole will be either retarded or stopped.

PATHOLOGY.

TROISIER ON PULMONARY LYMPHANGITIS.—In a pamphlet on 'Pulmonary Lymphangitis,' Dr. Émile Troisier gives an account of the minute anatomy of the lymphatic vessels of the lungs, and mentions the results of several experiments made by him, proving the connection between the cavity of the pleura and these vessels. He then explains the reason why he applies the term lymphangitis to the disorders of the lungs which he has under consideration. The word lymphangitis does not only indicate those lesions of the lymphatic vessels which are strictly speaking inflammatory, but includes those which proceed from other irritating causes.

The consideration of the disease is divided in two parts. In the first, cancerous lymphangitis is considered; in the second, the other forms of the lesion are enumerated and lightly touched upon.

The main part of the work consists of a description of cancerous lymphangitis (*lymphangite cancéreuse*). This disease presents two distinct varieties, their differences depending mainly on the position which they occupy in the lung.

Superficial or pleural lymphangitis, as its name indicates, attacks the lymphatic vessels situated on the surface of the lung. This form is generally dependent on the presence of cancer in the walls of the chest. It presents the appearance of certain star-shaped nodules, deposited apparently on the pleura, and sending off processes which intersect each other, and at the point of intersection are slightly enlarged. These processes are the lymphatic vessels. The nodules are essentially cancerous; the processes themselves are not so distinctly specific. On section, they exhibit canals lined with layers of large cells, their centres filled with a caseous magma.

Pleuro-pulmonary lymphangitis, the second variety of cancerous lymphangitis, attacks not only the superficial but also the deep lymphatics of the lung, the pulmonary and bronchial glands. Dr. Troisier relates two cases of this disease, giving the *post mortem* appearances observed, with the results of the microscopical examinations of the lymphatics. The symptoms by which these two varieties may be known are not very definite. They are common to cancerous infiltration, œdema of the lung, congestion, and bronchitis. The symptoms which seem to present somewhat of a distinctive characteristic appearance are cyanosis and dyspœa.

In the second part of his work the author enumerates the other forms of the lymphangitis, which are not cancerous. They are adenomatous, tuberculous, simple, and purulent lymphangitis.

Adenomatous Lymphangitis.—The existence of this form of the lesion seems, according to the author, to be at present doubtful. He, however, quotes two cases which go some way to prove that the disease may exist. It would seem from these two cases to be a condition of the lymphatic vessels dependent on a swollen and somewhat inflamed state of the glands.

Tuberculous Lymphangitis is rare. It consists of a prolongation into the lymphatic vessels of the tuberculous matter derived from a mass of that deposit. The propagation of the material by the lymphatic vessels seems to cause the formation of fresh tuberculous centres on their walls.

Simple Lymphangitis is best seen in pleurisy,

when a section is made through the layer of exudation and the subjacent serous membrane. The lymphatics are found to be distended with material, similar to that of the exudation on the pleural surface. It is probable that there is a true inflammation transmitted to the lymphatic vessels, at the time that absorption of the exudation begins to take place.

Purulent Lymphangitis is secondary to suppuration, either of the pleura or of the lungs. It is not a simple matter of absorption of pus-cells, but there is no doubt that the lymphatics themselves participate in the inflammatory action.

The facts brought forward by the author, in support of the theory of the connection between the pleural cavity and the pulmonary lymphatics, seems to be conclusive. The pathological results of his researches are also of value, as lending additional weight to the arguments in favour of the transmission of cancer by the lymphatic vessels.

W. KESTEVEN, JUN.

SURGERY.

BATTEY ON A SAFE AND READY METHOD OF RELIEVING INTESTINAL OBSTRUCTIONS.—The method advocated by Dr. Robert Battey (*Atlanta Medical and Surgical Journal*, June, 1874) is the use of distensile enemata of a much greater volume than has heretofore been practised. The author refers to the recent statements of Gustav Simon, Milbrand, and others, that by placing a patient upon the knees and elbows, so that the anus becomes the highest point of the intestinal canal, from five to nine pints of liquid could be introduced into the intestines before the sphincter yielded. These facts, the author asserts, are neither new nor remarkable; and he claims for himself priority in having proved in a paper written by him, and published in August, 1871, that much larger quantities of fluid can be injected into the gut with perfect safety and great advantage in cases of obstructed intestine.

Dr. Battey thus describes his method. Water of the warmth of blood is the best fluid, of which at least four gallons should be ready for use. The patient should lie on the left side. The syringe should be strong, durable, and continuous in its action. When complaint of distension is made, the injection should be suspended a little until the feeling of tenesmus passes off; then it may be resumed slowly and gently, while the patient is encouraged to retain it as long as possible. An assistant should firmly press with both his hands a folded napkin over the anus, around the tube, so as to assist the power of retention; when the combined efforts of the patient and the assistant will no longer prevent the escape of fluid, the syringe should be worked rapidly and forcibly for a few moments until the distress of the patient peremptorily demands cessation; then, and not until then, should he be allowed to get up. Dr. Battey adds this valuable caution: the full power of the distensile enema is never to be evoked *late* in a case of obstruction, or when there is reason to apprehend from symptoms, or the length of time it has existed, that the walls of the intestinal tube have been materially weakened by resulting inflammation, or that gangrene has commenced.

In December, 1871, the author published a series

of cases he had treated. In the second case, a boy aged twelve received about twelve pints of liquid into the bowels, with prompt relief to a serious intestinal obstruction supposed to be intussusception. In another case, a man aged fifty-five received nearly twenty-four pints also with prompt relief. In the other cases the quantity of liquid employed was not so accurately estimated, but it may be safely asserted that from twelve to fifteen pints were used in each case. An anodyne was always administered some time before the injection.

The experience Dr. Battey had accumulated induced him to conclude, when his paper was published in 1871, that water could be passed *per anum* not only into the rectum and colon, but on through the ileo-cæcal valve into the small intestines; but subsequently an accidental observation suggested the inquiry, Can the distensile enema be carried through the entire intestinal tract into the stomach and out of the mouth of the living subject? The author relates two cases in which, he believes, this actually occurred. In the first, a woman, aged twenty-three, suffered from supposed obstruction; into her intestine soapy liquid was persistently and slowly thrown, the abdomen being the while gently kneaded, until, when from eighteen to twenty pints had been introduced, copious vomiting of fluid occurred and the patient declared that she tasted the soapy water. In the second case, a man, aged sixty, suffering from symptoms of strangulated or incarcerated hernia, was chloroformed, and tepid water was injected into the rectum until such copious vomiting of discoloured fluid took place, as to convince those present that the water had passed through the stomach. This patient was cured of his obstruction. In January last, Dr. Battey and Professor J. T. Johnson experimented on the cadaver, so that the progress of the fluid upwards through the alimentary canal might be watched by the eye. The following is Dr. Battey's account of the experiment. The room was cold, the temperature being below 40°; the abdominal contents and the water employed for injection so cold as to numb the hands. Notwithstanding these disadvantages, the liquid passed readily along the entire length of the colon, and found no obstacle at the ileo-cæcal valve to its onward progress. Upon reaching the upper portion of the smaller intestine, greater difficulty was encountered on account of the collapsed and matted condition of the cold cadaveric mass; movement of the convolutions, however, by the hand, permitted the fluid to pass still onwards, until it finally reached the stomach, and even flowed out of the mouth on to the table. Further on in the paper, the author proceeds to discuss the varied forms of obstruction to which distensile enemata, aided by anodynes and anæsthetics, are applicable. He considers there is no variety in which, if not too long delayed, much benefit may not be obtained. As to the mode of action, he is of opinion that the distension of the intestine below the obstruction exerts a tractile power on the gut, at the same time that the upward force of the water will push before it an intussusception, or a knuckle of intestine from its imprisonment. It will soften and disintegrate faecal accumulations; and recent adhesions and bands may be stretched or ruptured in the safest possible manner. Dr. Battey avers that the proposition successfully carried out of introducing into the alimentary canal so large a quantity as two and a half or even three gallons of fluid with safety, he believes to be new and original with himself; but, however this may be, the success-

ful passage of fluid throughout the entire tract from anus to mouth, in either the living or dead body, he claims as unique and unprecedented. He much prefers the injection of water to air, the latter being, in his opinion, an irritant to the intestine, setting up by itself spasms and colicky pains; he also very strongly objects to distension brought about by the injection successively of an alkaline and an acid liquid, as generating an uncontrollable force likely to rupture the intestine; he admits that the intestine might be ruptured by water if a pump of adequate power be used, but says there is no danger to be apprehended with an ordinary elastic-bulb syringe, and further that the peril in which a patient is who is suffering from intestinal obstruction justifies some little risk in the method of treatment.

Dr. Battey considers the long flexible O'Beirne's tube as quite unnecessary, and concludes by protesting against the general injunction, 'that injections are not to be pushed beyond the point at which they are borne without much suffering; and also against the statement that they will very rarely succeed after the invaginated portion of the intestine has become swollen by congestion, and the peritoneal surfaces in contact have become adherent.' On the contrary, he thinks that even in apparently hopeless cases many lives may be saved by a perseverance in the use of copious distensile injections.

W. ALLINGHAM.

WALB ON REUNION OF INTEGUMENT AND CARTILAGE DETACHED FROM THE NOSE BY A RAPIER STROKE.—In this case, communicated at a recent meeting of the Niederrheinische Gesellschaft (reported in *Berliner Klinische Wochenschrift*, no. 36, 1874) some minutes elapsed between the injury and the application of the detached portion of nose, since this could not at first be readily found, and had to be cleansed from adherent dirt. This portion had been cut off from the left ala, and consisted at some parts only of skin, and at others of the more superficial layers of the cartilage. At no part of the raw surface thus left on the nose was there an opening into the cavity of the nostrils. The flap was divided by a transverse wound into two halves, which only just hung together. This was well fixed to the nose by seven peripheral sutures, and by a needle and looped suture at its central part. The subsequent treatment consisted in the continuous application of moist and warm dressings. The flap, which at first was pale, gained in the course of two hours a dark-blue colour, except at some parts at its margin, and over a large island in its centre, where the looped suture had been placed. These parts, however, soon acquired the pink hue of flesh, and retained their vitality. The sutures were removed on the third and fourth days, and healing was perfected without suppuration. The fact that the suture applied to the centre of the flap in this case suggested to the author the advisability of a similar proceeding in the transplantation of large pieces of skin. In conclusion, the author stated that small pieces of skin taken from amputated limbs had often been applied by him with successful results to granulating wounds after an interval of twenty-four hours.

VOLKMANN ON THE TREATMENT OF HYGROMATA CONTAINING FALSE CARTILAGES.—At the recent congress of the German Society of Surgery (proceedings reported in *Berliner Klinische Wochenschrift*, no. 35, 1874) Professor Volkmann stated the results of

his experience as to the use of drainage in cases of hygroma with floating contents. In three cases of this kind treated in the preceeding twelve months, an incision three-quarters of an inch in length was made into the sac at its upper, and another similar incision at its lower extremity; the free contents of the sac were then extruded, and the bodies adherent to its inner surface rubbed off by pulling backwards and forwards through the cavity a tightly stretched drainage-tube. This tube was then left in the sac, and the seat of the operation covered by Lister's dressing. In all three cases obliteration of the sac resulted, without any intercurrent disturbance or the slightest local reaction. He did not observe phlegmon, diffused suppuration, or necrosis of tendon, and the mobility of the fingers remained unimpaired. The removed floating cartilages were found to be concretions formed of coagulated albuminates, and were not organised growths. The name, therefore, of hygroma proliferum is not well adapted to these growths. In one case, where a portion of the cyst-wall was excised and examined, the inner surface was found to be coated by a thick layer of coagulum, which was rough and studded by tufts projecting into the cavity of the hygroma. Volkmann has also observed along the threads of a seton introduced into an hygroma a thick layer of coagulated albuminates, and at the free extremities of the thread firm club-shaped appendages of the same material.

GERSUNY ON A CASE OF FIBROMA OF THE ABDOMEN.—The author reports (*Wiener Medizinische Wochenschrift*, no. 36, 1874), a case of a large fibromatous tumour, growing from the anterior wall of the abdomen, and projecting into the abdominal cavity. An operation was performed by Professor Billroth for the removal of this growth, and the patient recovered. On account of the great size and excessive vascularity of the tumour, and of the extent of peritoneum removed in the operation, the case seems to be of special interest. The patient was a woman, aged twenty-four years, who had had three children, the last six months before the operation. About two years and a half previously, she noticed for the first time a hard round tumour near the anterior and superior spine of the ilium on the right side. After it had been present for a year and a half, and when the patient consulted Professor Billroth for the first time, the growth was of the size of a man's fist, and seemed to be prolonged into the cavity of the abdomen. As it then caused no trouble and seemed stationary, it was thought advisable not to interfere. After the subsequent confinement, however, the tumour increased rapidly in size, gave trouble on account of its weight, and was the seat of severe pains radiating along the right leg. Professor Billroth was again consulted, and again thought it well not to recommend an operation, on account of the danger of excessive hæmorrhage, and of wounding a large portion of peritoneum. On May 24, 1874, the patient again applied to Professor Billroth, who then decided, at her request, to operate for the removal of the rapidly increasing growth. At this time the woman was pale and seemed delicate; the right half of the abdomen was occupied by a prominent round tumour of the size of a man's head, which extended above to the lower margin of the thorax, externally to a line drawn directly downwards from the anterior axillary fold, and internally to a vertical line drawn

two inches to the left side of the linea alba.¹ The integument was much stretched over this growth, and marked by large venous convolutions. Part of the growth was situated immediately under the integument, and part of it extended deeply into the abdomen. Its surface was smooth, and its consistency very hard. There was slight mobility from below upwards, and from side to side. There was no œdema of the right lower extremity, and the pulsation of the right femoral artery could be distinctly made out.

The patient having been put under the influence of chloroform, an incision was made through the skin along the course of the linea alba from the umbilicus to the pubic symphysis. From the middle of this, a second incision was made obliquely to the right, over the most prominent portion of the tumour. The much stretched anterior layer of the sheath of the rectus abdominis muscle having been divided, the surface of the tumour was exposed, and the rectus muscle was found to be in a state of fatty degeneration, and pushed over to the right side. During this stage of the operation there was much hæmorrhage from the dilated veins of the integument and those on the surface of the growth. The posterior layer of the sheath of the rectus muscle was found to be enclosed within the tumour, and had evidently been the original seat of the disease. A considerable portion of the posterior surface of the tumour was next found to be closely adherent to the peritoneum, and wounding of this membrane in further steps of the operation could not be avoided. As the patient, on account of the continuous venous hæmorrhage, was manifestly in a state of collapse, the operation was completed as rapidly as possible; the portion of peritoneum in firm adhesion to the tumour being excised, and the connection of the morbid mass with the broad muscles of the abdomen divided with quick strokes of the knife. Corresponding to the excised portion of peritoneum, which was as large as the hand, could be seen the omentum completely covering the intestines. The bleeding during this last stage of the operation was still very profuse, and proceeded mainly from large veins. The ragged portions of the anterior sheath of the rectus muscle having been cut away, the vertical wound was closed, the sutures being applied separately to the peritoneum and the skin above, and carried through all the layers of the abdominal wall below. The peritoneum formed a large loose sac on the right side of the wound, through which sac two drainage-tubes were passed from above downwards, so that their ends projected at the upper and lower extremities of the line of incision. The transverse wound was then closed by sutures, and a third drainage-tube inserted at its outer extremity. The operation was followed by extreme collapse, which was treated by the administration of black coffee and wine, and by bandaging of the lower extremities from the toes upwards, in order to drive the blood to the central organs. The patient slowly recovered from this condition, and in the evening had a good pulse. The further progress of the case was satisfactory, and on July 9 the patient was sent home cured, and with the abdominal wound quite healed. The only bad symptoms, presented during the course of the after-treatment were some few attacks of febrile disturbance, dependent on diffuse suppuration between the layers of the abdominal wall, and retention at first of wound-secretion, and subsequently of pus.

W. JOHNSON SMITH.

DEMARQUAY ON FOREIGN BODIES IN THE ŒSOPHAGUS.—At the meeting of the Société de Chirurgie de Paris on October 14, M. Demarquay communicated particulars of two cases in which children had swallowed coins. In the first case, M. Demarquay immediately detected the presence of a foreign body in the œsophagus, and performed œsophagotomy. He ascertained that the coin had perforated the œsophagus and had fixed itself in the perforation, whence it was easily extracted. The child died, however, and at the necropsy M. Demarquay found a retro-œsophageal abscess which had discharged itself into the right pleural cavity. In the case of the second child, who had also, according to his own account, swallowed a coin, neither M. Demarquay nor MM. Denonvilliers and Nélaton, who assisted him, could feel any obstruction. The latter surgeons hoped that the intruder had ended by finding its way into the stomach, and had been expelled in the natural way. But after some time violent symptoms of chest-disease made their appearance, and, the child having died, a purulent collection was found in the right pleural cavity. It was evident that the origin of this collection had been a retro-œsophageal abscess produced by the foreign body, which had opened into the pleura. Struck by these facts, M. Demarquay instituted some experiments on animals, particularly dogs, by introducing into and fixing different kinds of foreign bodies in their œsophagus. When, after some time, the animal was killed, M. Demarquay invariably found a retro-œsophageal abscess opening into the right pleural cavity. This identity of results in men and animals is very remarkable; and M. Demarquay came to the conclusion that, in consequence of the rapidity with which foreign bodies produce ulceration and perforation of the wall of the œsophagus, they must never be allowed to remain in that canal, and that it is desirable to perform œsophagotomy very quickly.

BASCHIERI ON A CASE OF GUNSHOT WOUND OF THE BLADDER.—Dr. A. Baschieri describes in the *Bulletino delle Scienze Mediche* for August, 1874, the case of a lad named Andrea Morelli, aged sixteen, who was shot through the abdomen, the muzzle of the gun being at the time in contact with the part. He ran about a hundred yards, holding his hands to his belly, and then fell.

The hypogastrium was blackened, and in its lower right fourth was a circular hole, leading nearly perpendicularly into the pelvis, and giving exit to a continuous flow of urine. At the upper part of the aperture, which was at a distance of about two and a half inches from the umbilicus, there was an elevation, resistant to the touch, containing the charge (or a portion of it); this was removed by an incision through the sheath of the right rectus abdominis.

To facilitate the escape of urine, Dr. Baschieri made an incision downwards for more than a centimètre, and had the patient placed on his right side. Pieces of sponge were ordered to be applied to the wound to absorb the urine; and to be frequently renewed, and not reapplied until they had been well washed in a solution of carbolic acid. Charpie was laid over the sponge, and over this a bladder of ice. Ice was also given by mouth, and an opiate mixture was prescribed, to relieve the occasional attacks of pain in the abdomen. In the evening, a catheter was introduced; the operation gave great pain, but no urine escaped. Some warm water which was injected

through the catheter escaped entirely through the wound, turbid with charcoal *débris*.

At the end of four days, the fever having become very severe, sulphate of quinine was prescribed. For the ice, cold-water dressing was substituted; and this was in turn replaced by linseed-meal poultices, which were continued until the contused tissues were thrown off, leaving a large zone covered with healthy suppurating granulations.

On the thirteenth day, while the patient was at stool, urine escaped by the urethra; and from this time it continued to come by the natural passage.

The patient had a febrile attack, ushered in with severe rigor; it was arrested by sulphate of quinine. One day, the flow of urine was impeded by an obstruction in the urethra; and, on this being overcome, thirty lead shots were found at the bottom of the vessel. Others, making in all one hundred and forty, were expelled at various times. The patient had completely recovered two months after the accident.

Dr. Baschieri believes that the charge of the gun entered the bladder as a single projectile, and that it then became scattered, the shot becoming embedded in the mucous membrane, from which they were detached by a process of suppuration, which was the source of the febrile attacks.

GRANDESSO-SILVESTRI ON AMPUTATION OF THE HUMERUS BY ELASTIC LIGATURE.—In no. 30 (1874) of the *Gazzetta Medica Italiana Provincie Venete*, Dr. Grandesso-Silvestri describes the case of a man, aged thirty, the subject of caries of several ribs and of the left elbow-joint, in whom threatening symptoms of pyæmic poisoning appeared. The elbow being the seat of severe and obstinate pain, Dr. Grandesso-Silvestri considered that amputation was indicated; but, as it was evident that the patient could not bear the loss of blood, he decided on using the elastic ligature. An India-rubber thread surrounded with linen thread, having a diameter of about two twenty-fifths of an inch, was passed twenty times round the arm, below the insertion of the deltoid. The patient, who had taken nearly two drachms of chloral hydrate, felt the application of the cord, but did not give any signs of pain. Dr. Grandesso-Silvestri calculated that the cord acted with an equal pressure of twenty-one kilogrammes (about 46½ pounds).

The next day, the patient was free from fever, and had a good appetite. The limb immediately below the ligature was dead. Grandesso-Silvestri then removed the forearm, and took away from the arm half of the soft tissues remaining under the ligature. On the sixteenth day, the ligature had reached the bone; on the thirty-ninth day, the bone was loose; and on the fortieth day, it fell off with the ligature. The stump was cicatrised posteriorly; but on the anterior part had a dirty aspect, and the end of the bone protruded nearly an inch. During the process of detachment, there was rather severe pain. The wound was dressed with calomel powder and dry charpie; the stump became clean; and when the case was described, healing was nearly complete, and the bone had ceased to protrude.

Dr. Grandesso-Silvestri believes that the process might be shortened by cutting through the bone when the soft parts have been divided by the ligature; but he prefers waiting for the bone to fall off of itself, as in this way it is divided more smoothly.

In giving an abstract of the case in the *Gazzetta*

delle Cliniche for September 22, Dr. Daniele Baidardi remarks that all surgeons allow that an operative procedure is the more to be recommended if it be simple of performance. In this respect, Dr. Grandesso-Silvestri's plan is no doubt superior to every other. It gives greater security against hæmorrhage than the galvanic cautery, especially when the artificial production of local anæmia is not employed. The operation, however, has the drawback of being slow, and of keeping a diseased part long under the patient's observation. In the case related, there was severe pain during the prolonged action of the elastic cord. Grandesso-Silvestri did not have recourse to the 'bloodless method,' fearing that noxious principles would be carried into the circulation, and increase the danger of the patient; but it will occur to every one that he might have applied an elastic tube (as has been done by other surgeons), and completed the operation without hæmorrhage in a very short time, and with less trouble.

A. HENRY, M.D.

MATERIA MEDICA AND THERAPEUTICS.

JACOBI ON INFANT DIET.—Dr. A. Jacobi, Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, New York, writes as follows on the important subject of the diet of infants.

Of the Nursing Infant.—A much more frequent occurrence (than the increase in the normal percentage of salts) is too large a percentage of casein in mothers' milk. . . Casein will be curdled in hard masses, or will pass into the intestines in the same condition, and be evacuated almost unchanged, or covered, perhaps, with bile, a little viscid mucus, sometimes, even, with a streak of blood. . . The indications are either preventive or curative. The increase of casein is frequently accompanied by a diminution of sugar, and the neutrality may be replaced by a faint acidity; and the effect is constipation. . . I remove it (the constipation) in many instances by simply adding a moderate amount of sugar to the normal food. . . One or two scruples of loaf-sugar are dissolved in one or two teaspoonfuls or more of tepid water, and given to the baby just before nursing. . . The next indication is, to prevent the too sudden effect of the gastric juice upon the surplus casein, and keep it from coagulating in hard masses. . . Instead of the sugar-water mentioned above, I give the baby each time before it is put to the breast, a tablespoonful or more, according to age, of strained and well-sweetened oatmeal, for reasons, and prepared in a manner, I shall designate hereafter. . . For this plan, also, which has been serviceable in many cases where the former simple one would not suffice, I claim good theoretical reasons, and the result of various, and, I believe, unbiased observation of a long number of years. . . The third indication is curative, and refers to the correction of the excess of acid of any origin that may exist in the digestive organs. . . The main concomitant symptoms of acidity are either constipation or diarrhoea, the principal alkalis in question, preparations of potassa, soda, lime or magnesia. . . Wherever neutralisation is required in a case of constipation, we should resort to magnesia, soda, or potassa; whenever we have to deal with a diarrhoea, carbonate of magnesia would be indicated. Whenever no de-

cided indication was to be followed, we might select either of soda or potassa, the bicarbonate or the carbonate; the latter, however, when given in large doses, is too ponderous and less digestible than the former.

Artificial feeding cannot be successful without milk. . . . Where the choice is given, therefore, cow's milk ought to be preferred. . . There is in cow's milk less sugar, less of free alkali, less butter, but more and more coagulable, casein. . . Practically, when a relative deficiency of sugar in cow's milk is to be supplied, loaf sugar always answers the purpose. . . It is advisable to add an alkaline salt (the carbonate or bicarbonate of potassa or soda) to the cow's milk, and best at once when the milk is put aside for the infant's use. . . Thus I add one or two grains of either of the salts to every meal of the new-born, besides a small quantity of common salt—chloride of sodium—and a larger dose in proportion to age. . . Cow's milk ought to be cooked at once, in order to keep it as long as possible from turning sour, and ought to be preserved in a cool place, if not in an ice-box. . . Next in order, is the question how to prevent the great coagulability of the casein of cow's milk; I add, instead of water, a substance, which, by its physical consistency and cohesion, is apt to hold milk in suspension. Thus I mix quite thin and transparent mucilage with (boiled and skimmed) milk, and add the desirable quantity of sugar and salt, or soda. . . Looking for a substance which, while fulfilling that object, is absolutely indifferent, from a chemical and physiological point of view, it is gum arabic. . . An indifferent substance of this sort may be all that is desired for very young infants. . . The selection of articles of food, which are, at the same time, of a mucilaginous consistency, and nutrient, is perhaps, not so difficult as it appears to be. . . Barley and oat-meal are the two substances that I mostly employ. . . A teaspoonful of either is boiled in from three to six ounces of water with some salt [a pinch] for twelve to fifteen minutes, the decoction to be quite thin for very young infants, thicker for later months, and then strained through a linen cloth. Infants of four to six months are to have equal parts of this decoction, which ought to be made fresh for every meal; and (boiled and skimmed) cow's milk and sugar is to be added. . . The desire of parents to procure the milk of one special cow for their infants, I believe to be based upon a mistake. . . I have always advised the plan of giving the average milk of a farm, and have never been sorry for the results, in all parts of the city.

General Rules.—1. *Nursing Babies.*—Over-feeding does more harm than anything else. Nurse a baby of a month or two every two or three hours.

Nurse a baby of six months and over, five times in twenty-four hours, and no more. When a baby gets thirsty in the meantime, give it a drink of water. No sugar. In hot weather (but in the hottest days only), mix a few drops of whisky with either water or food, the whisky not to exceed a teaspoonful in twenty-four hours.

2. *Feeding Babies.*—Boil a teaspoonful of powdered barley (grind it in a coffee-grinder) and a gill of water, with a little (a pinch) salt, for fifteen minutes, strain it, and mix it with half as much boiled milk, and a lump of white (loaf) sugar. Give it luke-warm through a nursing bottle.

Keep bottle and mouth-piece in a bowl of water when not in use.

Babies of five or six months : half barley-water and half boiled milk, with salt and white sugar. Older babies, more milk in proportion.

When babies are very costive, use oatmeal instead of barley. [Add from three to six grains of bicarbonate of soda to each evening meal, for a few nights.] Cook and strain.

When your breast-milk is half enough, change off between breast-milk and food.

In hot summer weather, try the food with a small strip of blue litmus paper. If the blue paper turns red, either make a fresh mess, or add a small pinch of baking-soda to the food.

Babies of ten or twelve months may have a crust of bread and a piece of raw beef to suck.

No child under two years ought to eat at your table. Give no candies; in fact, nothing that is not contained in these rules, without the doctor's order.

Summer Complaint.—It comes from over-feeding, and hot and foul air; never from teething. Keep doors and windows open. Wash your children with cool water at least twice a day, and oftener in the very hot season.

When babies vomit and purge, give nothing to eat or drink for four or six hours, but all the fresh air you can. After that time you give a few drops of whiskey in a teaspoonful of ice-water every ten minutes, but not more until the doctor comes. When there is vomiting and purging, give no milk.

Give no laudanum, no paregoric, no soothing syrup, no teas.

DALKIEWICZ, MALLEY, AND OTHERS ON THE TREATMENT OF GOUT AND URIC ACID GRAVEL BY THE FERRO-BENZOATE OF LITHIA.—Several works lately published on gout and uric gravel (*Progrès Médical*, July 20), contain interesting information on the therapeutic employment of the benzoate of iron and lithia in gout and gravel. Some of the writers, as Dr. Dalkiewicz in his *Généralités sur la Goutte et son Traitement*, 1873; and Dr. Malley in his *Considérations Générales sur les Dyspepsies, la Gravelle et la Goutte*, recommend the simultaneous employment of the *eau de Vittel*, and of M. Trehyou's benzoate of iron and lithia. Benzoic acid when ingested changes into hippuric acid at the expense of the proteic matters, the principal source of uric acid. Hippuric acid forms very soluble salts in conjunction with the ordinary bases (soda, potash, and ammonia) of the fluids contained in the organism, whilst the urates of these same salts are insoluble in the fluids of the animal economy, since from them are formed calculi and gravel. Starting from these data, M. Gubler has given the preference to the employment of benzoic acid. (Gubler, *Commentaires du Codex Medicamentarius*.) But this acid cannot long be used by itself, as experiments made in the Paris hospitals have proved.

M. Trehyou has therefore wisely thought it useful to associate the benzoic acid with lithia, a very soluble product, which prevents a fresh production of uric acid, and forms with that already existing an urate of lithine, the most soluble of all the urates. However, the benzoate of lithia has its drawbacks in the long run, like all the alkalines; and with the object of lessening them as much as possible, M. Trehyou conceived the idea of adding iron to it.

Dr. Michel, and Dr. Clément in his '*Traitement de Gravelle urique avec de nouvelles Expériences sur l'Action des Alcalins*', show that M. Trehyou has not been mistaken in this method; an opinion corroborated

by M. Folle Desjardins in his *Essai sur les divers Traitements de la Goutte normale*, by MM. Palanchon, Drs. Raimondi, Maurel, Mallet, Lescure, etc. The summarised observations of cases in these works contain sufficient warrant to encourage medical practitioners in employing M. Trehyou's benzoate of iron and lithia in gout and uric acid gravel.

BARTHOLOW ON DEEP INJECTION OF CHLOROFORM FOR THE RELIEF OF TIC DOULOUREUX.—Dr. Roberts Bartholow communicates to *The Practitioner* (June 1874) an account of several cases of this painful affection treated successfully by hypodermic injections of chloroform. The infra-orbital branch of the nerve was the seat of the tic in the cases reported; and Dr. Bartholow's operation consisted in passing the needle under the upper lip in the direction of and near to the infra-orbital foramen, and then injecting from ten to twenty minims of pure chloroform. Considerable pain at first ensues, followed by a feeling of numbness and anaesthesia of the parts into which the chloroform diffuses. A puffy swelling quickly forms at the site of the injection, and an induration which lasts for several days follows. One very severe case operated upon in this manner gained relief from one injection covering a period of months.

WENZEL ON ICED CLYSTERS IN DYSENTERY.—Dr. Wenzel (*Annales de la Société de Médecine d'Anvers*, and *L'Indépendente*, April 1874) having had occasion to treat a great number of cases of dysentery, has found the best remedy to consist in the injection of ice-water into the rectum. The first case he treated in this way was one of severe dysentery. There were intense fever, abdominal pains, excruciating tenesmus, and profuse sanguineous evacuations. To check the hæmorrhage, injections of ice-water were ordered every two hours, which not only caused the sanguineous evacuations to cease, but also removed the tenesmus, enteric pains, and fever. The beneficial effect of these injections was so evident that the patient urgently demanded their repetition whenever the pains threatened to reappear. Dr. Wenzel considers this treatment more satisfactory than any other in acute cases, although in chronic cases it can only be expected to afford temporary relief.

FORMULARIES.

COD-LIVER OIL EMULSION.—The *Archives of Electrology and Neurology*, for May 1874 (quoted in the *Ohio Clinic*), gives the following formula as one that suits better than any other :—Cod-liver oil, ʒiv ; Glyconin, ʒix . Glyconin is made by thoroughly triturating glycerine and yolk of egg, equal parts. Add to the glyconin thirty drops of the essential oil of bitter almonds; then add the oil to the glyconin very slowly, drop by drop, stirring vigorously all the time. The success of the emulsion depends on the thoroughness with which this task is performed. Then add Jamaica rum, ʒij ; Dilute phosphoric acid, ʒss to ʒj . The average dose is one tablespoonful after meals, being regulated mainly by the phosphoric acid.

If properly prepared, the medicine does not separate, keeps for a long time, and is rather agreeable to the taste. If need be, pyrophosphate of iron can be added, or strychnine, or Fowler's Solution. It has been used especially in hysteria and allied affections, and in organic diseases of the nervous system it is

also valuable. Consumptives take it in preference to cod-liver oil. As cod-liver oil has a somewhat unpalatable name it is sometimes better, in prescribing for nervous patients, to call this the phosphoric emulsion. The fishy odour cannot be entirely neutralised; but for those who are not familiar with cod-liver oil, neither the odour nor taste of this emulsion, when well made, suggests the presence of oil.

INHALATIONS IN ASTHMA.—Ætheris sulph., 30 parts; Acidi benzoici, 15 parts; Balsami Peruviani, 8 parts; or, according to another formula, Ætheris sulph., 2 parts; Spiritus terebinthinae, 15 parts; Acidi benzoici, 15 parts; Balsami Peruviani, 8 parts. Place the mixture in a vessel having a large opening; the warmth of the hand is sufficient to volatilise the materials, and inhalations may be used four or more times a day as occasion demands.

AURAL SURGERY.

WEBER-LIEL ON PROGRESSIVE DEAFNESS.*—The present teaching of the character and recognition of the chief affections of the ear is in little conformity with the actual facts. Almost all cases of deafness accompanied by subjective noises are referred to chronic affections of the middle ear. This is so far true; but all affections of the middle ear are not of a simple catarrhal inflammatory nature. Many more varied, primary, and secondary pathological processes are met with, which implicate not only the mucous membrane of the middle ear, but also the other structures of that cavity, viz., the muscles, joints of the ossicles, vessels (vaso-motor paralyses), and particularly the nerves supplying these, and the nerves in connection with them. Cases described as catarrhal are often clearly of a rheumatic nature, of which Hippocrates and other old writers made observation.

The chronic affections of the ear may be divided into two great groups: 1. Those in which tinnitus is not present, or only by complications, or during intercurrent inflammations; and, 2. Those in which tinnitus is present from the beginning, and forms a constant and afflicting symptom. The first class has not a strong tendency to progress. The diseases included in it—as, for example, the chronic purulent catarrh of the middle ear—may exist for years without any increase of the deafness. The second class is characterised by the more or less progressive character of the diseases comprehended in it.

Of the progressive ear-affections spoken of formerly as the 'nervous,' latterly as the 'chronic dry catarrh of the middle ear,' a large number are characterised by disturbances of the equilibrium of and diseases in the muscular apparatus of the middle ear, though it must be allowed that these are also frequently caused by disturbances of innervation from catarrhal changes. The sensitive apparatus of the middle ear must be looked at as a system of counterstraining and antagonistic forces, whose relations to each other may be affected at any one point by motor, sensitive, or trophic influences, or by mechanical causes; these, by rendering the normal capabilities of motion difficult, alter the

function of the whole apparatus, and give different expressions of disease according to the importance of the part specially affected. One of the affections described belonging to this group, whose presence, either complicated or uncomplicated, is very common, has its true and lasting causes in primary or secondary mobility defects of the muscular apparatus of the Eustachian tube. In it the paralysis of the tensor veli plays a chief part for two reasons. 1. There arises from the paralysis of the tensor veli collapse of the tube, and therefore hindrance of the proper continual ventilation of the tympanic cavity. 2. Allowing, from Weber-Liel's newly given observations, that the tensor veli acts as an antagonist to the tensor tympani, when the elastic strain and contractility of the tensor veli is entirely or partially paralysed, not only collapse of the tube occurs, but an antagonistic contraction of the tensor tympani also; and so, the want of air in the tympanic cavity being added to the effect of the anomalous straining of the powerful system of active factors in the mechanism of the tympanic cavity, a high degree of nutritive and functional anomaly in the cavity and labyrinth must in time be occasioned. Thus arise, according to Weber-Liel, many cases of catarrh of the middle ear, from the hyperæmia *ex vacuo*, caused by the rarefaction of the intratympanic air, and the retardation of the tympanic and intratympanic circulation by the increased amount of strain and limited motion of the structures from the abnormally contracted tensor tympani. This simultaneous defect of air in the cavity and contraction of the tensor tympanic cause, (1) an abnormally strong tension of the tympanic membrane, (2) an abnormally tight fixation of the chain of ossicles, and (3) an increase of the intralabyrinthine pressure, since the stapes is pressed into the labyrinth by the ossicular chain. Thus the reception and conduction of the vibrations and the vibrating capability of the implicated portions are much prejudiced. As the functional expressions of these disturbances, arise subjective auditory sensations, and also frequently sensations of faintness. At the beginning of the affection disturbances of hearing may be present, but they are not then noticed as deafness, but rather as acoustic hyperæsthesia for certain noises; and gradually thereafter defects in the capability of hearing, especially during mixed conversation, make their appearance, and again are followed by symptoms which are spoken of as accommodative disturbances; and now, when the other ear begins to suffer, the tinnitus gradually arises and increases. The collapse of the tube and the abnormal contraction of the tensor tympani continuing, there develop in time secondary changes in the sound-conveying apparatus, the hyperæmia of the tympanic cavity already present often increasing through the passage of catarrhal conditions from the pharynx to the now easily affected parts, and intratympanic exudations are easily produced by slight attacks of cold. The structures in the tympanic cavity being, on account of the defect of air in the cavity, approximated to each other, give these exudations points for adhesive attachments. A not necessary but very frequent consequence of the continual impressing and fast fixing of the stapes in the fenestra ovalis is a synostosis of the stapes, and other anomalies in the joints of the ossicles; the local hyperæmia, which is especially marked in individuals of the gouty, rheumatic, and syphilitic diatheses, playing an important part in the production of such changes. In time

* On the Character and Curability of the most frequent form of Progressive Deafness; with investigations and observations. By Dr. Fr. E. Weber-Liel (F. E. Weber), Teacher of Aural Surgery in the Berlin University. Augt. Hirschwald: Berlin, 1873.

the hyperæmia of the tympanic cavity lessens, the 'Stauungs-hyperemie' leads to interstitial connective tissue growth and wasting of the vessels, and trophic changes of different kinds are seen, atrophy of the tympanic membrane being common. It is comprehensible that in time changes in the circulation and nutrition of the labyrinth must also occur, not only on account of the continual and increasing pressure from the cavity, but on account of the difficulties under which the conducting apparatus must act. It is a matter of observation that such patients at the beginning of a conversation often hear moderately well, but when the affected ear has been strained for an hour or so they complain of giddiness and increased tinnitus, which symptoms can only be referred to an increased flow of blood to the labyrinth. If the patient labour from some pulmonary or other affection which retards the return of blood from the head, the connection of the arachnoidal space with the labyrinth through the ductus cochleæ, a connection more fully shown by Weber-Liel in the *Monatschrift für Ohrenheilkunde* for 1868, explains why such symptoms appear markedly in such patients. A course of Carlsbad waters sometimes alleviate the symptoms of such patients, but the ear-affection itself continues. Vaso-motor paralysis may also complicate the affection.

In one chapter a copious delineation of all the symptoms is given as they are seen in the best marked cases. There is one series of symptoms explained which till now has received little or no attention, viz. the snapping noises which are heard by the patient during the motions of chewing and swallowing, and which are common in the first stage of the affection, seldom later. The moist walls of the Eustachian tube lie, on account of the relaxation of the tensor veli, on each other; but in swallowing the muscle is yet in a condition to separate the walls from each other, and thereby arises the snapping noise. The proof of the correctness of this explanation is given by the effect of the intratubular electrification of the muscular apparatus of the tube, which sometimes succeeds in abolishing the noise, making the tube pervious to a weak air-douche, lessening the tinnitus, and removing aside the already beginning deafness.

Weber-Liel holds that ear-affections seldom depend on pharyngeal catarrh, which, he says, is much more often present without any aural affection than the latter without the former. With the condition above described, he says, there is nearly always a pharyngeal affection present, but this will be seen by an examination of the pharynx to be of a catarrhal nature in about one half of the cases only. The patient complains of a scratching in the throat and of a feeling of drawing together, or as if a hair lay upon the pharyngeal mucous membrane, which inclines him to hawk or cough, this latter feeling being especially noticed when the patient is thirsty. When he speaks for some time, frequent hawking becomes imperative, and speaking becomes difficult, and tires him easily. Singing the higher notes cannot be easily accomplished, and the patient becomes quickly hoarse. Certain acts of swallowing can no longer be made with the necessary energy, and they quite refuse, for example, by Politzer's method, the opening action in the Eustachian tube. Weber-Liel interprets such appearances as neuroses. The continued use of the tympanic catheter, or the passage of bougies through the tube, and the employment of his method of intratubular electrification of the muscular apparatus of the tube have convinced the

author that in cases where an imperviousness of the tube to the air-douche has been diagnosed, this seldom results from a catarrhal swelling of the tube, but from a collapse of the tube-walls, through the abolition of the counterstraining force of the antagonistic muscles. The air-douche does not pass through, but the introduction of the bougie is easy. This conspicuous non-concurrence of the results of the tactile and acoustic examinations, combined with the appearances of *post mortem* examinations, confirm the supposition of a collapse of the tube.

Weber-Liel is not satisfied with the statements hitherto given out as to the anatomical and physiological relations of the moving factors of the Eustachian tube and tympanic cavity, and has therefore himself made numerous investigations, and gives out some new and important facts. He makes special note of the fact, that the muscular apparatus of the tube exerts not only a dynamic action upon the structures with which it stands in connection, but also has a static power, whereby the elastic tension of the non-contracted muscles must have a continuous influence upon the elastic tissues connected with them. From this point of view the question arises whether there is, apart from the act of swallowing, a continuous interchange of air in the tympanic cavity through the Eustachian tube. Weber-Liel holds the proof by no means conclusive that the tensor veli contracts at the moment of swallowing, and so opens the tube; he thinks that the tube may be caused to gape at that moment by the pulling downwards of the palatopharyngeal muscles on the pharyngeal fascia, into which the end fibres of the tensor veli reach, and through these pull upon the cartilaginous attachment of the muscle, and so cause the gaping of the tube.

A seemingly important discovery of Weber-Liel's is that the pterygoideus internus is not only a muscle of mastication, but that it also contracts the fascia of the tube. He thinks that this explains a series of symptoms which have been hitherto inexplicable. When, for example, the pterygoideus internus is energetically contracted, a powerful straining is felt in the ear (in the membrane of the tympanum), and a singing noise is heard in the ear of that side. This, he says, is brought about by the fact that, the tensor tympani having an origin from the fascia of the tube, and being covered in its whole length by a continuation of the same, a stretching of it will cause a tension of the muscle, and consequently a straining on the membrane of the tympanum must be the consequence. The giddiness and tinnitus sometimes experienced by patients suffering from aural affections is also, he considers, explained by this action of the pterygoideus internus, through the fascia, on an already abnormally retracted tensor tympani. The investigations which he made on the anatomy of the tensor tympani itself support, he believes, this theory. He finds that the muscle does not arise from fixed but from movable points, from the cartilage of the tube and the fascia covering it, so that every change of tension of these parts, and especially of the hook of cartilage, from which the strongest bundle of fibres originates, causes a change of tension of the tensor tympani, and of the structures of the tympanic cavity attached to it. Since the hook of tube-cartilage is moved chiefly by the tensor veli, Weber-Liel has designated it the antagonist of the tensor tympani, and of this antagonistic action he brings further proof. He has determined that the result of pulling on the muscles from both sides goes through a fixed point, the hamulus ptery-

goideus and the rostrum cochleare. He says that the statement till now received that the tendon of the tensor tympani winds round the rostrum is a mistake, and asserts that it is fixed in the depth of the band of the rostrum cochleare. He devotes a chapter to the analysis of the above-mentioned symptoms, and their explanation by anatomical and physiological observations.

In the chapter on etiology he speaks of the causes which contribute to relaxation, insufficient action, and paralysis of the muscles in question. General weakly conditions from disease, parturition, excessive exertion, unhealthy conditions of life, will have disturbing influences on muscles already weak, and this is often the case with the muscular apparatus of the tube. He thinks that the muscles of the tube of the left side participate in the general more feeble development of that side, and thinks that the affection nearly always begins on the left side. Chronic catarrh of the mucous membrane covering the muscles appears to have often been the starting-point of defective functional ability of this group of muscles. In nervous individuals, in those much affected by grief or care, with different nervous lesions (*e.g.*, of the trigeminus), the innervation of this portion is very easily disturbed under disposing influences. Rheumatism, tubercle, typhus, diphtheritis, progressive muscular atrophy, chlorosis, and anæmia are all mentioned as causes. He concludes this chapter with a series of *post mortem* examinations, which go to corroborate the opinions above given.

The therapeutics have the disadvantages of different treatment at different stages. In the first stage, the sole indication is to bring the ventilation of the Eustachian tube into the normal force, and to remove the relaxation or paresis of the muscular apparatus of the tube, especially that of the tensor veli, on the disappearance of which will also disappear the antagonistic contraction of the tensor tympani. The intratubal electrification of the muscles of the tube is the chief means. The striking results which are often obtained by this prove, according to Weber-Liel, that the character of the affection is such as he has described. In later stages, the treatment must be directed against the secondary changes, after the appearance of which only very imperfect results are obtained. The only remedy which then assists is the restoration of a persistent opening in the tympanic membrane, and tenotomy of the tensor tympani.

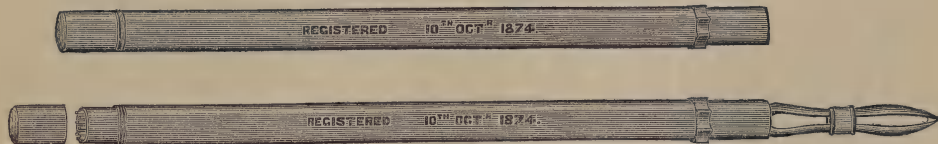
At the close of the treatise there is a series of cases given, illustrating the diagnosis and treatment; and several well-executed engravings are added for the better explanation of the author's anatomical investigations.

By all interested in aural surgery, this monogram ought to be perused with care. The new facts there given out must assist greatly in the elucidation of one of the probably most common, and at the same time most intractable, diseases which surgeons have been called upon to treat.

W. LAIDLAW PURVES.

NEW INVENTIONS.

THE 'PEN' VACCINATOR.



Dr. R. Harvey Hilliard has had an ingenious little instrument, bearing this name, made for him by Messrs. Maw, Son, and Thompson, of Aldersgate Street. It is made like a drawing-pen, such as accompanies sets of mathematical instruments, and presents several advantages over most other contrivances for the same purpose.

Its points are sharp enough to abrade or scratch the cuticle, without drawing blood, a very great advantage in more ways than one. They are made of a hard incorrodible metal, and when not in use, shut tight into the portable case, which thus constitutes a 'moist chamber.' There is room enough between the blades for lymph sufficient to vaccinate at least a dozen children. When about to use it, the pen part is reversed, as seen in the figure, and a scratch is made (which carries the vaccine virus to the desired spot). For greater certainty, a second short scratch may be drawn across the first, thus, X. For vaccinating from arm to arm nothing could be better—as the instrument charges itself. It also serves to open ripe vesicles, to charge Dr. Husband's capillary glass-tubes, and it will carry several of these at the other end, so that a school or a good-sized vaccinating station can be served with this pocket instrument. There is nothing in it to alarm

either mother or child. It is neat, portable, efficient, and bloodless. We therefore confidently predict a large sale for this little weapon.

MISCELLANY.

MEDICINE IN RUSSIA.—The Russian *Golos* contains some medical statistics, from which it appears that in Russia there is only one physician to 17,800 people, whilst in Italy there is one to each 2,280. There are some governments, such as that of Tcherdinck, where the proportion is even lower, and there is only one healer of the sick to each 60,000 inhabitants. The surgeons are more numerous, and average one to each 12,400 inhabitants. Of hospitals there is only one for each 175,000 inhabitants, who, from the distances at which they live from the institution, are not likely to abuse the privilege of out-patient relief. In Prussia they are rather better off in this respect, having one hospital to each 22,000 of the population. One lying-in hospital must suffice for each 1,000,000 Russian women, one foundling hospital to every 1,350,000 of the inhabitants, one lunatic asylum to each 90,000, and one deaf and dumb asylum for each 11,000,000. The army medical service is far more in accordance with the wants of that body of the population, since there is a hospital for each 5,000 soldiers, whilst in Prussia there is one for every 1,250.

LEAD IN SODA-WATER (CONVICTION).—It is satisfactory to find that the law is not altogether inadequate to protect the drinkers of aerated waters if it be properly put in motion. At the Dumbarton Police Court, before Bailie Buchanan, James Ewing, manufacturer of aerated waters, was charged under the Food Adulteration Act with having sold as genuine a bottle of soda-water, which was simply pure water charged with carbonic-acid gas, and which also contained one-tenth of a grain of lead per gallon, which rendered the use of the water injurious to health. He pleaded not guilty, and affirmed that he had made his soda-water in precisely the same manner as all other makers. He said there had not been until recently any other way of making these waters except by charging water with carbonic acid gas, and that soda was not put into them unless specially arranged for. When the matter was brought under his notice he had got his machine altered as soon as possible, and the waters were now all right. Mr. McKay, the prosecutor under the Food Adulteration Act, said that some time ago he had got samples of soda-water from the makers in town and sent them to the public analyst (Dr. Clark, Glasgow), who reported that they contained no soda, and also that he found a quantity of lead, which would prove injurious to health. Mr. Ewing had said that he believed the lead might have been originally in the town's water and not caused by his machine. Mr. McKay had a sample of the town's water, which had to pass through a leaden cistern analysed, and it had been found to be perfectly pure. The accused said he did not doubt that lead had been found in his soda-water, but the same thing had been the case wherever it had been analysed. That, however, would be prevented in future. He then withdrew his plea, and pleaded guilty, when he was fined 1s., with 2s. 10s. of modified expenses.

THE CORONERSHIP FOR CENTRAL MIDDLESEX.—For the vacant office of Coroner for Central Middlesex a sharp contest is, we hear, likely to occur between members of the medical and legal professions. The most prominent medical candidate is Dr. Hardwicke, who has been favourably known for several years as the deputy coroner, on Dr. Lankester's appointment; also as medical officer of health and public analyst for Paddington, and secretary of the public health section of the Social Science Association. Mr. Granville, a gentleman of medical qualifications, and formerly editorially connected with the *Globe*, is also a candidate. On the legal side Mr. Serjeant Sleigh, and Mr. C. J. Lewis, M.P., who contested the election with Dr. Lankester, and was defeated by a narrow majority, are announced as candidates. The Middlesex magistrates are, it is stated, as a body, much in favour of a legal appointment; but on the other hand the impression is gaining ground, we think, that an inquiry into the cause of death, which has often to be conducted without legal assistance, and in the presence of medical evidence, often on one side only, is best conducted by a judge who has medical knowledge, by which to check the statements and opinions of the medical witness. Without such knowledge a coroner is often helplessly in the hands of the medical witness, who can impress on the coroner and jury whatever verdict he wishes. A legal coroner is in the majority of cases compelled to take the whole of the facts and conclusions from the medical witness, often the most interested person, and his verdicts are nothing else than a record of that evidence, which no one in court has the knowledge to criticise or check. This is not a satisfactory state of things, and we are strongly of opinion that in a great number of cases no other than a medical coroner can afford the necessary safeguard which an inquest is intended to afford.

WHY THE CHAMELEON CHANGES COLOUR.—At the meeting of the Société de Biologie of Paris, of October 17, M. Paul Bert discussed the cause and mechanism of the changes of colour in the chameleon. The animal is normally of a dark bottle-green colour, which changes

to pale green and then to very pale yellow. The causes of these changes of colour should, he said, be sought for in the nervous system exclusively. If the sciatic nerves of the left side of the chameleon be cut, the side on which the division is made will take on the darkest shade of green, whilst the other side will become lighter. The nerves to which the changes of colour should be referred take their rise directly from the encephalon, and follow the same direction as the motor nerves, for if the chameleon be poisoned with curare it becomes black, and if it be chloroformed it becomes lighter in tint; whilst, if the experiment be carried further and it be killed with the latter anæsthetic, it then turns black. By taking away the two halves of the encephalon and leaving the nucleus, the animal changes colour and becomes very dark. If, on the contrary, one hemisphere of the encephalon be left, the chameleon remains light coloured on one side, whilst the other side becomes darkened. It is therefore evident that there exist what may be termed colouring nerves, setting out from the nucleus of the encephalon, the two hemispheres of which are destined to moderate the nerve-action and to give a greater or less intensity to the tints of the chameleon. The mechanism of these changes has been thus explained by MM. Milne Edwards and Pouchet. Under the skin, and communicating with it, are vessels filled with a pigment coursing through little canals which intersect, cross, and interlace each other in all directions at the back of the epidermis itself. This pigment is afterwards drawn back into the vesicles by the volition of the animal, and the chameleon then takes on a pale tint produced by a pale yellow tissue visible by its transparency. M. Paul Bert has also noticed that light excites the colour of the chameleon. Thus, if the animal be disturbed in its sleep during the night, the side illumined by the light becomes pale, whilst the other side remains dark. This influence of light and its power in exciting these changes of colour in the chameleon require elucidation, and may prove to be a starting-point for interesting researches in general physiology.

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The London Medical Record.

WEDNESDAY, NOVEMBER 11, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

CHARPENTIER ON HÆMORRHAGE FROM PLACENTA PRÆVIA.

(Concluded from page 678.)

Treatment.—That plan of treatment which is of service at one period of gestation is useless at another. It behoves therefore to make a careful review of the different methods proposed and the times they are applicable. Bleeding is useless; opium is equally so; cold is no better. There remain but the induction of labour, ergot, plugging, rupture of the membranes, and lastly, a plan recommended by Simpson and Barnes, and adopted by the English, to detach the placenta, and extract it in advance. [This last statement must be startling to English accoucheurs.—*Rep.*] Forced delivery is the most ancient method, and was formerly practised by the hand, one or two fingers being inserted into the cervix uteri; later, the os was nicked in several directions with a bistoury, an extremely hazardous and severe measure, which should only be adopted in extremes when all else has failed. The cervix is frequently lacerated to a great extent.

Puzos never ruptured the membranes until the os was somewhat dilated. This system is called after Puzos, he being considered the first suggester. Such, however, is not the case, as the older authors always treated these cases after this manner (Mauriceau, Dionis, Deventer, etc.); only they did not use gradual dilatation by means of the fingers, as he advised, but excited uterine contraction, when the pains were feeble, by hooking the finger round the os, and dragging on it, with intervals of rest, from time to time. This method is not applicable to complete placenta prævia. Encouraged by the success attending this mode of treatment in partial placenta prævia, accoucheurs were induced to attempt ruptures of the membranes in the complete form; consequently Deventer advised thrusting the finger through the placenta; so did Rigby. Baudelocque, instead of the finger, used a trocar. Gendrin preferred detaching the placenta with his finger in one direction, so as to reach the margin of the placenta, and rupture the membranes. Dubois advised rupture of the membranes only in partial, or very urgent cases of complete placenta prævia. Dr. Charpentier teaches that the membranes in complete placenta prævia should only be ruptured after Gendrin's method, either when the os is so dilated that the termination of the labour can be speedily accomplished, or when the foetal heart indicates danger to the child. The method is contraindicated when the presentation is abnormal; recourse must then be had to other means, and also when rupture of the membranes does not hasten the labour. In the latter case, ergot is of great service; but, from its fre-

quent destruction of the foetal life, it requires great care in its use. It should never be used in contraction of the pelvis, organic lesion of the uterus, or false presentation. But the safest and best treatment is the tampon, which, however, from defective and ignorant application, has not always yielded the results it should do. M. Leroux first brought it into general use. Both Drs. Bailly and Barnes disapprove of it; the latter because he has propounded another method which he thinks superior. The author uses it in the following manner. He strings a number of pieces of charpie together, like the tail of a kite, about twenty in number. The amount necessary is large, rarely less than a pound, and frequently a pound and a half. It is divided into three parts; one third is strung together, the next divided into pledgets, but not tied together, and the last third left as it was. Five or six long compresses, and a T-shaped binder, are also prepared. Before applying the plug, the vagina should be well syringed, so as to remove any clots, the urine drawn off, and the rectum emptied. In applying the tampon, some authors recommend that the pledgets should be dipped in a solution of perchloride of iron; a cerate of cold cream is better. Some pack the os first, and then fill up the *cul-de-sac*; the present writer joins with those who advise the reverse operation. In plugging the *cul-de-sac*, force is not required, but dexterity and gentleness. When the vagina is full, some dry pieces of charpie are applied to the vulva before placing the compresses on. If the external pieces of charpie remain dry, the hæmorrhage has ceased; if, on the contrary, they become moist and stained, the tampon should be immediately removed and another introduced, taking care to squeeze those plugs in contact with the posterior part of the vagina and the neck. The success of the operation depends on this. The operation should be done very rapidly. The tampon should be kept in from twelve to twenty-four hours, and ergot given in certain cases according to circumstances. The method of using the handkerchief or a piece of muslin, as practised in England and Germany, is not recommended, as it prevents ample packing of the vagina, whether the speculum is used or not. The objections to the tampon are these:—1. Transforming an external loss into an internal one; 2. Prematurely inducing labour; 3. Causing great pain; preventing micturition and defæcation, and producing serious ills. The first is unfounded, as, with the placenta adherent to the os, the membranes intact, and the child *in utero*, it is impossible. Any obstacle to the escape of blood favours its coagulation, and so arrests the hæmorrhage. Even if the placenta be detached at certain points, the labour having begun, the blood retained by the tampon forms a clot, and acts as a plug between the tampon and the placenta, the liquid part escaping and distending the pieces of charpie. If the membranes be ruptured, a certain amount of blood escapes into the uterine cavity, but the contraction of the uterus prevents it from increasing to any great amount. Should the head present, it is forced down upon the cervix, and acts as an internal tampon. The uterus, under any case, should be strictly watched, and a tight binder placed round the woman; should the bleeding be found to increase, no time should be lost in removing the tampon and hastening delivery, the cervix being nicked if it present an obstacle to the extraction of the child. M. Jacquemier strongly advocates the tampon if the labour is established suffi-

ciently to keep the hæmorrhage within moderate bounds. The second objection is hardly one, as the hæmorrhage, as a rule, does not show itself until about seven-and-a-half months. The child is viable, and the observations of Dubois, Kock, Lachapelle, Depaul, and Villeneuve have proved that a tampon can, in some cases, remain in forty-eight hours without inducing labour, and even, when labour has set in, without terminating it. The safety of the mother and child should be considered first. As to the last objection, the urine can be easily drawn off; as to the bowels, if the rectum have been previously emptied, there is no necessity of considering them. It should be recollected it is only a palliative measure preparatory to an ulterior one. Dr. Barnes orders the tampon to be removed at the end of an hour, which accounts for the ill-success in his hands. M. Depaul and Pajot advise, if the hæmorrhage have ceased, not to remove the tampon for twenty-four or thirty-six hours, except under particular circumstances. Should labour not have set in, it should be then withdrawn. If, on the contrary labour have begun, the pain being feeble, M. Depaul orders the tampon to be replaced, and to be kept in only a short time, from two to eight hours, and ergot to be given. When the os is thought to be sufficiently opened, the waters are ruptured, and the fœtus is delivered, either by version or the forceps, as soon as the os permits. Should the hæmorrhage re-occur in great quantities, or in a feeble person, or exhausted from loss of blood, the tampon is again to be replaced, and dilatation of the os to be waited for, until it is wide enough to extract the child through it. The membranes in these cases are not ruptured until the moment of extraction. This plan is applicable in every case. M.M. Bailly and Pajot plug the vagina, but, instead of removing the plug when they think the dilatation complete, forcibly retain it by the hand until so much is expelled that the end of the labour must be near; then one or two grammes (fifteen or thirty grains) of ergot are administered. This method greatly increases the mortality of the child, and is its chief objection, besides being inapplicable in many cases. When the waters have broken, and internal hæmorrhage has occurred whilst the tampon was in the vagina, it should be immediately removed, and other means employed. If a woman be much exhausted from loss of blood, and the pains be feeble, the tampon should not be retained in indefinitely until it may have arrested the hæmorrhage, but only be kept in sufficiently long to enable the woman to recover herself a little. It should be then withdrawn, and artificial extraction attempted. The idea that the tampon by its pressure on the cervix prevents its dilatation, is not the case in reality. There is always a space between the tampon and the cervix which is filled with coagulum. M. Bailly's plan is admissible, when the pains are strong, the head presenting, and the membranes intact; the infant is lost, it is true, but the mother is saved. M. Depaul's method is best in the reverse conditions. When it is determined to terminate the labour, the treatment is guided by whether it is a marginal insertion or a central one. If marginal, the membranes should be ruptured, and the hand or the instrument passed; if the pains be strong, and the hæmorrhage slight, and the head press firmly on the cervix, the case should be left to nature. Of the two methods, separating a portion of the placenta so as to enable the hand to rupture the membranes and to seize the child, or tearing

through the placenta, both are very fatal to the child; the former is preferable, and gives the infant a better chance. M. Bailly, out of thirty-two cases, lost seventeen mothers; of the fifteen saved, six were treated by means of the tampon alone; nine with the tampon associated with other methods. In the cases of death, two were treated by the tampon alone, and fifteen by the tampon combined with other methods. Of eleven cases personally attended, he treated five by turning; three recovered, and two died; in six, he used the tampon only; five were cured, and one died. In the Clinique from January, 1852 to January, 1873, there were 16,613 confinements; placenta prævia occurred in sixty-five. Of the mothers, forty-three recovered and twenty-two died; of the infants, twenty-three were saved, and sixty-two died. The modes of confinement were: version in twenty-two cases; the forceps in nine; labour terminated spontaneously in thirty-three, and one died undelivered. The insertion was central in twenty-one, and marginal in forty-four. There were fifty-three multiparæ and twelve primiparæ. Of the thirty-three cases of spontaneous delivery, twenty-five mothers and fourteen infants survived; eight mothers and nineteen infants died. In the twenty-two version cases, thirteen mothers and six infants recovered; nine mothers and sixteen infants died. In the nine forceps cases, five mothers and three children were saved; four mothers and six infants died.

Finally, there remains detachment of the placenta. Radford, in 1844, collected forty cases, and showed that pressure of the child's head upon the placenta was the cause of the arrest of the hæmorrhage, and propounded the six following propositions. 1. Neither the delivery nor the detachment of the placenta ought to be attempted until the os was sufficiently dilated to permit the introduction of the hand without danger. 2. If the death of the fœtus be certain, detach the placenta entirely, replace the membranes, and leave the case to nature if the pains are strong, if not apply galvanism. 3. If the pelvis be retracted, extract the placenta, puncture the head and extract with the crochét. 4. If the os be partly dilated or dilatable sufficient to allow the passage of the hands and the pains are strong and the waters broke, detach and extract the placenta. 5. If there be great exhaustion from excessive loss of blood and the placenta be central, perforate it with a trocar and cannula and draw off the liquor amnii, and then completely remove the placenta and use galvanism. 6. If partial placenta prævia, rupture the waters; should there be hæmorrhage, employ galvanism. Simpson, attracted by this theory, proposed the entire separation of the placenta previous to delivery. He collected an immense number of cases to prove his theory, and showed that where the placenta was spontaneously expelled before the child, the maternal mortality was only 10 out of 129, and of infants, 31 out of 82. Cohen (*Journal für Geburtskunde*, 1855) suggested turning a complete placenta prævia into a partial, by detaching one-half and allowing it to hang down in the passages. Bunsen proposed only partial avulsion of the placenta; he states that it stops the hæmorrhage, and does not prevent the child going its full time. Lastly, Dr. Barnes's method, which is too well known to need explanation, consists in detaching the placenta from the placental zone.

In conclusion, version is found the most fatal to mother and child, the forceps less so, and spontaneous

delivery the least so. It is therefore desirable, whenever possible, to leave the case to nature, and only to interfere when the life of the mother or child is imperilled.

W. C. GRIGG, M.D.

ON THE TREATMENT BY MINERAL WATERS OF CHRONIC DISEASES, AND ON THE PRINCIPAL SOURCES ADAPTED TO THE VARIOUS MORBID CONDITIONS. BY M. GUBLER.*

(Continued from page 694.)

X. Treatment of Urinary Gravel.

The physician has to treat two principal forms of gravel, the lithic acid, and the phosphatic. Oxaluria is comparatively rare, and its treatment is essentially the same as that of the first form of gravel.

For the lithic, that is red gravel, there are two modes of treatment, the preventive, and the curative. The first is the treatment of the lithic acid diathesis, and will be treated under the head of gout. I shall now merely indicate the waters which act directly on gravel. For subjects who are robust and plethoric, at all events in fair condition, one may boldly order the strong alkaline waters of Vals or Vichy, or the analogous weaker ones of Soultzmat and Marcols, also those of Boulou and of Neyrac, where there are establishments. The three last are suited for patients who are somewhat under par, as they contain a little iron. But in the case of patients decidedly broken down and anæmic, the strong alkaline waters are too depressing, and we must employ some harmless waters in large doses, which may, as it were, wash out the kidneys and urinary passages. Such are the indifferent waters of Evian or Amphion, or the mixed waters of Contrexéville, Martigny, and Vittel in the Vosges, or those of Pougues.

Some of the more slightly sulphurised and weakly alkaline springs of the Eastern Pyrenees may suit, especially if the gravel is attended with a considerable amount of vesical catarrh.

In the case of phosphatic gravel, which is seldom a primary formation, but almost always a consequence of other lesions of the urinary organs, attended with purulent catarrh and alkaline urine, Moltig, Olete, and La Preste in the Eastern Pyrenees, render the greatest service. In similar cases, the degenerated sulphur waters seem to have the advantage over others, of reducing the secretion by acting on the mucous membrane, and preventing ammoniacal fermentation of the urine.

Evian, Contrexéville, Vittel, and Pougues are all useful in catarrhal affections of the bladder, with or without the complication of phosphatic gravel. The strong alkaline waters would only be injurious.

[There is no allusion in this section to any German waters, not even to those of Wildungen, or of the now less known Heilbrunnen, whose larger proportion of iron distinguishes them from most waters employed in this class of diseases, and makes them especially suitable in anæmic cases.—Tr.]

XI. Treatment of Gout and Rheumatism.

Closely connected with lithic acid gravel is gout, the chief characteristic of which is the presence of an excess of lithic acid and of the lithates in the

blood and humours. There is the most entire discordance among the most eminent physicians respecting the treatment of gout; some having great faith in pharmaceutical remedies and in mineral waters; some having none. These differences of opinion can only be explained by supposing, that different conditions are represented by the one name of gout.

In order to make a judicious use of our remedies, we must discriminate each case. Nothing but hygiene and regimen can be opposed to the gouty diathesis itself. An access of acute gout must be treated at home, like one of acute rheumatism. But the moment the case becomes subacute, mineral waters are applicable, as the diuretic ones of Evian, of the Vosges group, or the soothing baths of Bagnères, Adour, Bagnoles (Orne), Nérès, Ussat, and some others. Chronic lesions, the effects of repeated attacks of gout, thickening of the fibro-synovial membranes, stiffness of the joints, and atrophy or hypertrophy of the muscles corresponding with them must be attacked with the stimulant baths of thermal stations, and especially such as are sulphurous; Barèges, Aix-les-Bains, Cauterêts, Ax, Luchon, Le Vernet. Only when topi are present, or in any case where the tissues altered by gout are irritable, the ordinary treatment by *massage* (shampooing) should not be carried out. As for the excess of lithic acid, which is the basis of the constitutional affection, we must modify it as we have already explained under the head of lithates, sometimes by alkaline waters, sometimes by the indifferent and slightly mineralised ones, always having regard to the patient's condition. The same principles are applicable to the treatment of rheumatism. Acute rheumatism is no subject for mineral waters; the subacute forms will only bear soothing baths and diuretic waters. The application of mineral waters is oftenest required for chronic alterations of the joints, and changes in the muscular and fibrous tissue; and the hottest waters in their various modes of application give the best results.

The chemical composition of waters has really not much to say to the therapeutic effects, and the indifferent waters of Plombières, Bains, Luxeuil, Nérès, or the salt waters of Balaruc, Bourbonne, Bourbon l'Archambault, and the mixed ones of Chateaufort, Mont Dore and Saint-Nectaire, are as effectual in chronic rheumatism, as the sulphur waters of Bagnols, Aix-les-Bains, Luchon, Barèges, Gréoulx, etc.

Nevertheless, the mineralisation is not entirely a matter of indifference. Waters which contain sulphur, or a good deal of chloride of sodium, or which are highly charged with carbonic acid, add the special stimulation of those substances to that which results from a high temperature, and suit best torpid constitutions and old lesions, in cases which have had no recent paroxysms. Waters weakly mineralised are better suited for cases, where the inflammatory action is only lulled, and when the subjects are irritable.

But in spite of their different degrees of mineralisation, all the baths frequented by rheumatic patients may, by various modifications of the method of applying the waters, be adapted to each variety of morbid form. And practically we are often obliged to recommend baths, not according to their mineral contents, but according to their proximity or distance, the nature of the bath establishment, or the elevation and climate of the station. Supposing that we could always take into account all the

* *Journal de Thérapeutique*, no 10 et seq.

various requirements of the general health, and of internal treatment, we might make a more discriminating selection among the waters we have enumerated, and send those who suffer from eczemas or from scrofula, to the strong saline or well sulphuretted waters, and especially to the sulphur-waters containing chloride of sodium, and iodine and bromine, of the Basses Alpes. Anæmic and cachectic patients might be sent to the complex and restorative waters of the centre of France. In the thermal baths just enumerated, rheumatic patients also often find great relief in some stations, from the deposit from the waters, chiefly accidental sulphurones.

Mineral mud is now very little used; yet prolonged illutation or poulticing with the mud is of great service in swellings of the joints, in old muscular contractions and paralysis. The length of time during which it is kept on makes up for the weakness of the topical application. Time takes the place of temperature. Baths of mineral mud, such as are used at Franzensbad, Marienbad, and at Acqui in Italy, are supplied to us in France in various localities. The principal are at Saint-Amand, and illutation is practised in a special form at Barbotan, Aurensan, Saubuse, and Dax, there are mud-baths at Aix in Savoy, Bourbonne, and Uriage, where their topical action, at once relaxing and stimulating, co-operates with the high temperature of their waters.

[It may be conceded to M. Gubler, that France is amply supplied with waters for the thermal treatment of rheumatism and gout; but the number of such waters in other countries, visited by hosts of patients, is so great, that at least some of them might have been mentioned. There is some misapprehension about the mud-baths of Marienbad and Franzensbad, which are compared with those of Acqui. But the artificially prepared earth of the German mud-baths cannot well be classed along with the natural deposits or *fanghi* of Acqui, Apona, and other places.—*Tr.*]

XII. Treatment of Paralysis.

Purgative mineral waters taken at home, are the only ones that a physician can prescribe in cases of recent paralysis, due to a lesion of the encephalon or of the spinal cord—to hæmorrhage, or to inflammatory action. A true physician will never think of sending to mineral waters a hemiplegic or paraplegic subject, in whom the causal lesion has not completed its course, and whose condition might be greatly aggravated by the thermal excitement, and the fatigues of a cure. But how long are we to abstain from them? Are we to wait only for the cessation of the symptoms of irritation, and for the absorption of the effused blood, or are we to wait for an entire disappearance of the altered condition of the cerebral tissue around the effusion, the formation of a cicatrix, solid or cystic, but entirely devoid of irritability? Competent men do not hesitate to undertake a mineral-water course at a very early stage, which may, in their skilled hands, be safe. But I confess that, where the results are so uncertain, I do not recommend precipitation.

The stimulating treatment of Balaruc, Bourbonne, Bourbon l'Archambault, is only to be recommended, when all signs of irritation have disappeared in a case of hemiplegia, and when there are no symptoms that might indicate a possible return of congestion, of hæmorrhage, or of softening of the nervous centres.

The rule for paralyzes of cephalic origin, applies also to those of spinal. Peripheric paralyzes, those from cold and from rheumatism, have also their periods of excitement, and must have thermal treatment applied with similar reserve.

To sum up, paralyzes consequent on acute diseases, hysteric paralyzes, and those from lead and metals, can scarcely fail to profit at La Malou, at Balaruc, Bourbon l'Archambault, Bourbonne, Saint-Nectaire, or at Aix-les-Bains, Bagnols, Barèges, as also by the illutation practised at Barbotan, Dax, Saint-Amand, and some other stations. Rheumatic paralyzes which have become torpid gain by the same treatment, and so do old paraplegias and hemiplegias, when they have no symptoms of irritation.

But all that is really to be expected, is the re-awakening of the cutaneous sensibility, the increasing of the activity of the capillary circulation, favouring nutrition, and restoring muscular contractility. Mineral waters, like other remedies, have no direct action on cephalic or medullary lesions. The mineral-water cure is simply palliative, retarding the atrophy of paralysed limbs, and hastening the restoration of their motor functions.

We can thus easily see, how mineral waters are usually powerless in the case of some cerebro-spinal affections which are essentially progressive, as infantile paralysis, locomotor ataxia, and spinal softening. Nevertheless, I think it is worth while to have recourse to them, before all therapeutic means have been exhausted. Occasional successes, obtained without doubt in the period of mere neurosis, with simple molecular alteration, and more numerous cases of amelioration in advanced ataxia, the consequence of thermal treatment, especially at La Malou, supply very real grounds of encouragement for making a further trial of such treatment.

XIII. Treatment of Albuminous and Saccharine Diabetes.

The albuminuria of Bright's disease is in reality just as much a constitutional affection as glycosuria. Results of analogous causes, and presenting similar morbid phenomena, they yield to the same therapeutic agencies, thus showing how closely their pathology is allied.

When there is no primary nephritis, the presence of albumen in the urine, like that of sugar, indicates a relative excess of that protein principle, taking into account the expenditure, and the proportion of blood-corpuscles, on which it is dependent; whether the excess is caused by a diminution of the blood-corpuscles, or by the introduction of an exaggerated quantity of albuminous articles of food; or whether it depends on some obstacle to blood-making, or on some retardation in the nutritive and formative processes. The similarity of causes points out similarity of treatment; and in both affections I recommend abstinence from articles of diet containing an excess of albumen, moderation in eating, muscular exercise, life in the open air, and all conditions favourable to complete respiratory action, and to the restoration of the system; fourthly, the use of certain blood-making and nutrition-promoting medicines, such as iron and manganese, and at times arsenic or other substances which have the power of modifying nutrition and the constitution of the blood. Among these curative agents there are none superior, indeed, none comparable, to the mineral waters.

Vichy has long established its fame in saccharine

diabetes, and Vals, and other more or less strong alkaline waters, have done the same. Do these waters act by compensating for deficient respiratory combustion, as M. Mialhe thinks, following M. Chevreuil's beautiful experiments on the action of the presence of alkalis in the conflict of oxygen with combustible matters, or do they somehow moderate the functional activity of the liver, according to the celebrated doctrine of the sugar-making property of that organ? Do they not more probably, as I think, act by stimulating the cells of the parenchyma of the principal blood-making gland, and by ensuring the assimilation of the ternary products required for the formation of some tissues, and especially the muscular fibre? The reply to this is doubtful; but if the theory is so, the fact remains positive, and is confirmed by every-day experience, that there is a considerable reduction of the amount, if not entire withdrawal of sugar from the urine, under Vichy treatment. But this cure only suits florid diabetes, that is, the disease when it occurs in those who seem to enjoy robust health, as is usually the case.

But when there is anæmia, with defective nutrition, or when the glycosuria is associated with pulmonary tubercles, then strong alkaline waters cannot be prescribed in large doses, or for any length of time, without extreme danger. In such cases shall we content ourselves with small doses of the strong, or with the feebler alkaline waters? I think not; even small doses of alkaline waters would only increase the general cachexia.

The good effects of that splendid station Carlsbad need not be considered as militating against this, if we take into consideration the complex mineralisation, as well as the feeble alkalinity of its waters.

What anæmic cases of diabetes require, are the restorative waters, the normal *protogéniques*, as I have called them, at once to remind us of their origin, and to show both that they afford all the mineral materials required for the animal structure, and that they are the ordinary types of waters arising from the deeper strata of the earth. Rouzat, Saint-Maurice, Vic-le-Comte, Chateaufort, Saint-Nectaire, La Bourboule, and even Chatel Guyon, in spite of the absence of soda, are all indicated as substitutes for Carlsbad. Indeed restorative effects are more easily procurable from the French waters, as they have not the troublesome laxative effects of Carlsbad. Bourboule, too, would stand at the head of all mineral waters in saccharine diabetes, if it were once really proved that arsenic has the power of diminishing the proportion of sugar in the urine.

Chronic albuminuria, which is of course its only form for mineral-water treatment, has for a long time been regarded only as the expression of a renal affection, necessarily progressive and fatal. But the theory of albuminuria suggests the use of the restorative waters I have just enumerated. I used formerly to prescribe the use of imported chloride of sodium and sulphate of soda waters, before recommending a course of waters in the centre of France; but of late years I have been satisfied that many patients suffering from albuminuria have derived advantages from them, such as they could not have received from any pharmaceutical treatment. In purgative and alterative doses, the waters of Chatel Guyon have produced excellent results; among others, in a case of Bright's disease with anæmia, anasarca, and abundant desquamation of the tubuli. Favourable changes have been obtained under similar circumstances at Saint-Nectaire and at La

Bourboule. I have no doubt that Saint-Maurice, Saint-Myon, Rouzat, and Chateaufort would do similar service; but Saint-Nectaire appears to me to be the most complete type of those mineral *lymphs*, of which Carlsbad is a fine foreign specimen. The normal proteogénic waters possess, in my opinion, a double medical action. Not only do they repair the losses of the neutral salts of the serum, and give activity to the blood-making process, but also by the superabundance of mineral riches which they supply, they augment the capacity of the blood for albumen, and thus prevent its escape by the various channels of elimination. But to produce these effects the course of waters must be somewhat prolonged, and not shorter than four or five weeks.

[If such effects can really be obtained from them in glycosuria and albuminuria, M. Gubler is entitled to be in raptures over the waters of central France. No doubt they are an interesting and important group; and, without accepting far-fetched notions about primary rocks and mineral lymph, it must be admitted that the waters of Saint-Nectaire and of Royat are good alterative tonics. It seems to be certain that the waters of Bourboule do really contain an unusual quantity of arsenic, and the station is rising rapidly in importance. The accounts of local observers appear to be silent, or all but so, as to the good effects of these waters in the cases now treated of by M. Gubler.—*Trans.*]

XIV. Treatment of Skin-Complaints.

No more than ordinary medicines, are any mineral waters really specific in chronic skin-affections. Each has its special indications with reference to its physiological action. But the same indications often arise in the course of affections that may be very different as to their primary cause, and varied remedies may be required by the same case during its different stages. We must therefore not be surprised to find the same water ordered for very different affections, and the same affection treated by very different waters.

In selecting a place for a cutaneous affection, we must consider on one hand the extrinsic or diathetic cause, on the other hand the anatomical condition of the lesion. If it be a case of parasitic dermatosis, psora, herpes circinatus, pityriasis versicolor, etc., we prescribe the strong sulphur-waters of Challes, Barèges, or Luchon, which are eminently toxic to the lower organisms of both kingdoms.

Gouty dermatoses, when they depend on excess of lithic acid, are advantageously modified by alkaline waters. Strunous dermatoses are sent, according to the case, to two classes of waters—the chloride of sodium waters with iodine and bromine, or the sulphur ones. It is admitted generally with M. Bazin, that the true *herpétides* are especially under the influence of arsenical waters. But I beg to remark, that this class of waters is not a very natural one, that its characters are in great measure negative, and that so many other elements are present along with the arsenic, that it is difficult to speak positively of the action of the latter. Syphilitic eruptions will be discussed afterwards.

The different forms of cutaneous affections require different waters. Thus moist eruptions do best with sulphur-waters; hypertrophic or ulcerating lesions are best treated by the salt and iodine waters; while the dry squamous affections require the use of

protracted baths, a sort of slow maceration, as much in indifferent ones as in those of special mineralisation. So to say, patients are most readily cleansed by salt or alkaline waters, or by sulphuro-bituminous ones, having a distinct local action.

Dry scrofulous skin affections, in the form of lichenoid eczemas, of lichen, of tubercles, and squamæ, should be treated by the salt waters of Salies, the two Salins, Balaruc, Bourbonne; moist eczematous or impetiginous ones, should first be sent to Pyrenean stations, to Barèges, Ax, Luchon, or, still better, to Digne and Gréoulx. Uriage is, owing to its laxative qualities, suited specially for lymphatic scrofulous patients, and so also Saint-Gervais, where the separation of the purgative and the sulphur wells, facilitates the employment of whichever is most indicated.

Arthritic eruptions may be divided among the pure alkaline waters of Vals or Vichy, or the mixed ones of Auvergne, Royat, Rouzat, Saint-Maurice, La Bourboule, and the lighter distinctly alkaline sulphur waters of the eastern Pyrenees, Moltig, Olette, La Preste.

If the eruption is at all acute, or there is irritability of the skin, I prefer the milder waters of each class, such as those of Moltig, or the weaker sources of Ax, Luchon, or Cauterêts, or even the sulphide of calcium ones, chiefly containing sulphuretted hydrogen, as Enghien, Saint-Honoré, Guillon, Allevard. In some cases we may be content with the indifferent waters of Plombières, Bains, Nérès, Ussat, Bagnères de Bigorre.

On the contrary, inveterate affections, usually of the squamous form, such as lichen, lepra, psoriasis, require the protracted use of strong waters, and improve at Bourboule, Gréoulx, and also at the sulphuro-bituminous sources of Saint-Boès and Euzet. Excessively prolonged immersion even in waters of feeble mineralisation, produces powerful stimulant effects, resembling those of stronger waters. Owing to this topical irritation, and the *poussé* which is the consequence of it, one sees eruptions, which have remained stationary in spite of the most rational treatment, change their character in the baths of Leuk in Switzerland. The same results might be obtained at many other stations, especially those where they practice illutation, as Saint-Amand, Dax, and Barbotan.

(To be concluded.)

ANATOMY AND PHYSIOLOGY.

KNOLL ON REFLEX EFFECTS ON BREATHING, PRODUCED BY INTRODUCTION OF VOLATILE SUBSTANCES TO THE AIR-PASSAGES UNDER THE LARYNX.—In the *Sitzungsberichte* of the Vienna Academy (Band 68, Heft 4 & 5), Dr. Knoll, of Prague, has a paper on this subject. The fact that the temporary state of expansion of the lung is sufficient of itself so to excite the vagus, that it calls forth inspiratory, or (more generally) expiratory movements, in a reflex way, led him to expect that by various other natural stimuli of the pulmonary ends of the vagus, similar actions would be produced. The question was interesting, both as regards the theory of respiration, and from a practical point of view. Dr. Knoll's experiments were made on small dogs; the stimuli used were chloroform, ether, benzin, mustard-oil, ammonia, and car-

bonic acid. The nasal mucous membrane was carefully guarded against their action. The author's results are thus stated.

1. Inhalation of chloroform or ether vapour produces, by reflex action through the vagus, acceleration and shallowness (*Verflachung*) of the movements of respiration, with a deeper position of the diaphragm.

2. Inhalation of benzin or mustard-oil vapour, the vagi being intact, produces the same reflex changes.

3. If a dog, with intact vagi, inhale from a weak ammoniacal solution, the effects are the same. If a strong ammoniacal solution be used, there occur, alternately, a considerable retardation, deepening, and long-continued cessation of breathing in the position of expiration, and acceleration and shallowness of the respiratory movement, in the position of inspiration. The whole series of phenomena depends on reflex action by the vagi.

4. Apnoea, produced by the introduction of chloroform or ammoniacal vapours, continues afterwards. The first breathing movements produced after disappearance of the apnoea are governed by the reflex action on the breathing, produced by the stimuli.

5. If a dog, with intact vagi, inhale pure carbonic acid, or a mixture of atmospheric air and carbonic acid, no phenomenon occurs which can be entirely explained by a direct excitation of the vagi by carbonic acid.

If, now (adds Dr. Knoll), we consider the action of these substances (as described) on introduction of them into the air-passages under the larynx, and, on the other hand, their previously described action on application to the nasal mucous membrane, it appears, that from different points of the air-passages, we may, by these substances, produce reflex effects on the breathing, which may be very different according to the nature of the substances used, and the place of application. If we further consider that some of these substances, after being received into the blood, call forth considerable changes of another kind in the respiration, we are able to comprehend how, with the usual mode of employing these substances for medical treatment (chloroform *e.g.*), there occurs a perfect tangle of phenomena; and only if we can accurately discriminate what, in this tangle, is attributable to a reflex action by the nasal mucous membrane, what to a reflex action by the deeper air-passages, and what, finally, to the reception of these substances into the blood, will it be possible for us to understand the mass of various and apparently conflicting observations which have accumulated with reference to the changes in respiration produced by inhalation of those volatile substances (especially chloroform).

KUNKEL ON THE DEPENDENCE OF PERCEPTION OF COLOUR ON THE TIME.—In a recent number of *Pflüger's Archiv* (vol. ix.), M. Kunkel describes some experiments made, in order to measure the time which is necessary for particular colours of the spectrum, especially red, green, and blue, to have their greatest action. The following results were obtained.

1. The different parts of the spectrum take different times to produce their maximum of excitation; and, in all cases, the time taken by red is the shortest; then follow blue and green, of which, with equal subjective brightness, blue has the precedence. Thus, *e.g.* to produce the maximum excitation (with equal breadth of the slit admitting the light), red

required 0.0573 second; green, 0.0971 second; and blue, 0.1018 second. With about equal brightness, the numbers obtained were, for red 0.0573, for green 0.133, and for blue 0.0916.

2. For the same colour it holds good, that the greater brightness takes a shorter time to produce the maximum of excitation than the less. This appears clearly from the following table:—

| Colour. | Degrees of Brightness. | | |
|-------------|------------------------|----------------------|----------------------|
| | 1 st Sec. | 2 nd Sec. | 4 th Sec. |
| Red . . . | 0.071 | 0.0573 | — |
| Green . . . | 0.133 | 0.097 | 0.0699 |
| Blue . . . | — | 0.102 | 0.0916 |

3. With the brightness vary also colour tone and saturation. This fact (the author adds) has already been experimentally proved by Helmholtz, and may be expressed by the statement, that with increasing brightness of coloured light, the sensations called forth tend towards the white. M. Kunkel observed that blue, without change of its colour-tone, passes into white, whereas green and red approximate to the white through yellow.

He further observed here a marked influence of time on the perception of brightness and of colour-tone. It appeared, especially in the case of green, that the intensities of the coloured light, with short time of action (as much as was necessary to produce maximum excitation) produced uncommonly high values of excitation, and an extensive change of colour tone, whereas the same parts of the spectrum with the same objective brightness, but with continued looking, excited the eye much less intensely, and thus always made the impression of the colour belonging to that portion of the spectrum with great saturation.

4. With very short action of homogeneous light on the eye, the colour-tone is also altered, and in such a way that the whole spectrum now appears divided into two parts, one of which gives the impression of red, the other that of blue. If the excitation be made in still shorter time, or with less intensity, we come to a point where there is perception of light but no perception of colour. Only the red end of the spectrum behaved differently to M. Kunkel's eye; here there was always a perception of colour.

RAEHLMANN ON SENSIBILITY OF THE EYE IN DIFFERENT PARTS FOR DIFFERENT COLOURS.—In order to measure accurately the sensibility of the eye for different colours (which is known to be variable), M. Raehlmann adopted the following method (*Graefe's Archiv für Ophthalmologie*, vol. xx. part I).

A bundle of solar light is reflected from a mirror into a tube at such an angle that it is polarised; the polarised bundle is then decomposed by a prism, passes in a tube, through two movable slits, by means of which portions of the spectrum may be cut out, and then reaches two Nicol prisms, the position of which relatively to each other indicates the intensity of the coloured light from 0 up to 1 through a series of intermediate degrees. The observer begins with a position of the Nicols, in which all the light is extinguished; and then one of them is turned round, until the first sensation of light is perceived; the corresponding intensity is indicated by the angle which the Nicols make with each other. The intensity of light was measured in the case of the several rays, and the results fully agreed with those

reached by M. Lamansky, by a different method. M. Raehlmann's conclusion is, that the eye shows a greater sensibility for waves of mean refrangibility, for the middle of the spectrum; that the sensibility decreases towards the sides, and is least at the ends of the spectrum, at the extreme red, and the extreme violet. It further appeared that there was less sensibility for the last and still visible red rays than for the extreme violet rays.

M. Raehlmann then experimented on the sensibility of the eye for the different colours, at different parts of the retina, and found, that at the periphery of the latter, the sensibility is quite different from that at the centre. Thus the sensibility for red at 30° from the middle of the retina was about $\frac{1}{13}$, and at 60° = $\frac{1}{4}$ of the sensibility of the centre. In the case of yellow the difference was least; blue came next; for green it was considerable, thus at 30° the sensibility was $\frac{1}{3}$ rd, at 60° only $\frac{1}{6}$ th of the central sensibility. For violet there was at 30° a still greater sensibility; while at 60° the sensibility was nearly equal to that at the centre. While a considerable margin must be left for errors of observation, the changed sensibility at the periphery of the retina was satisfactorily established, and it must result in a variable perception of the primary colours.

MATHIEU AND URBAIN ON THE PART PLAYED BY THE GASES IN THE COAGULATION OF THE BLOOD.—In a paper communicated to the Academy of Sciences at the meeting held on September 14, 1874, MM. E. Mathieu and V. Urbain state, as the result of their experiments: 1. That carbonic acid is the agent of the spontaneous coagulation of the blood; 2. That during life the obstacle to this coagulation resides in the blood-corpuscles, these having as their special function the fixation not only of the oxygen, but also of the carbonic acid contained in the blood. As a result, the coagulating action of the last-named gas cannot be exerted in physiological conditions. They proceed to show that there are many proofs of the participation of carbonic acid in the phenomena of the spontaneous coagulation of the blood. Thus, the amount of carbonic acid contained in blood before coagulation, and after coagulation, was at 100° F., 48.05 and 39.38 cubic centimetres; at 86° F., 50.00 and 44.85 cubic centimetres; at 59° F., 49.00 and 40.95 cubic centimetres; and at 50° F., 54.50 and 42.50 cubic centimetres. Again, the blood which returns from glandular organs, and especially from the kidneys, is incoagulable, and this blood contains very little carbonic acid (renal arterial blood 49.78 cubic centimetres per cent., renal venous blood 16.00 cubic centimetres per cent.). So also, if the removal of carbonic acid from the blood be favoured by simple exosmose, coagulation will not take place: yet if it be placed in an atmosphere of carbonic acid, coagulation rapidly sets in. The clots, however, are softer than those which form in air, rendering it probable that oxygen influences their consistence. Lastly, certain neutral salts impede or prevent coagulation, but such salts fix a notable volume of carbonic acid, and thus withdraw it from the blood.

NAWROCKI ON THE CONDUCTION OF SENSORY IMPRESSIONS IN THE SPINAL CORD.—Herr Nawrocki states in a paper published in *Ludwig's Arbeiten aus der Physiolog. Anstalt zu Leipzig für* 1872, that in 1870 Miescher arrived at the conclusion that the fibres of the sciatic nerve, which can produce

elevation of the blood-pressure by reflex action, run, after their entrance into the cord, in the lateral white columns. Several years previously, Türck had maintained that these columns contained sensory fibres. The researches of Miescher left it doubtful whether a portion of the sensory fibres acting upon the muscles of the vessels did not run in the grey substance of the spinal cord. Nawrocki's experiments were undertaken with the view of determining this point, and he has satisfied himself that all the fibres of the sciatic nerve, which reflectorially effect increase of blood-pressure, ran upwards within the upper segment of the lumbar region of the spinal cord in the lateral white column.

HEUBACH ON THE ACTION OF QUININE ON THE NERVOUS SYSTEM.—H. Heubach (*Centralblatt*, no. 43) has repeated Eulenburg's experiments (*Reichert und Du Bois-Reymond's Archiv*, 1865). The author employed a subcutaneous injection of the weak basic amorphous muriate of quinine, which is easily soluble in an equal weight of water. The following results differ from those of Eulenburg. 1. Small doses do not diminish, but increase the reflex excitability. 2. By large doses the reflex excitability is at first increased, and then diminished; still this diminution is to be viewed as a consequence of cardiac paralysis. 3. Very large doses influence not only the respiration and action of the heart, but extinguish very rapidly all signs of life, and therewith the reflex excitability.

With regard to the cause of death in poisoning with quinine, the author finds, as well in frogs as in mammals, that the respiration stops first, and that the paralysis of the heart occurring in consequence can be hindered by artificial respiration. Death from quinine, therefore, is not due to direct poisoning of the heart; but in the first place, to paralysis of the respiration, although the heart is also paralysed by quinine though later than the respiration.

W. STIRLING, M.B.

WILLIAMS ON THE ACTION OF BILE IN PROMOTING THE ABSORPTION OF FATS.—C. H. Williams (Royston Essay, first prize, *Boston Medical and Surgical Journal*, May 7), has made several experiments on this subject by ascertaining the pressures required to force oil through membranes when they were dry, when moistened with water, and when moistened with oil. He also employed thin plates of plaster of Paris instead of membranes in some of his experiments, as the pores in the plaster are rigid and cannot alter in shape. From these he arrives at the following conclusions. 1. The passage of neutral fats through capillary canals or pores is favoured by the presence of bile in those pores. 2. This action is increased when the bile is rendered alkaline, and diminished when it is acid. 3. The action cannot be due to the bile changing the form of the pores. 4. After passing through membranes moistened with bile, the fats appear more finely divided than with membranes wet with other substances, apparently showing that the drop-tension or cohesion of the fat has been affected.

GARLAND ON THE ACTION OF INTESTINAL JUICE. G. M. Garland (Royston Essay, second prize, *Boston Medical and Surgical Journal*, May 7) has obtained intestinal juice from a Thiry's fistula in a dog. The juice was not collected until the animal had perfectly recovered its health after the operation required to establish the fistula. It digested fibrin both raw

and boiled, though it had little action on boiled eggs, and it changed starch into sugar. He seems to have made no experiments himself on the conversion of cane into grape-sugar, but he considers this to be pretty well established by other observers. Microscopic examination of the intestine at the fistulous opening showed no structural change in it except atrophy. The author made the interesting observation that, when the dog was frightened, the secretion of intestinal juice became much diminished.

T. LAUDER BRUNTON, M.D.

RECENT PAPERS.

Critical and Experimental Researches on the Existence of Centres for Voluntary Movements in the Grey Cortical Substance of the Brain; and on the Relations of these Centres with the Nuclei of Grey Matter at the Base of the Encephalon. By MM. C. Carville and H. Duret. (*Le Progrès Médical*, October 24.)
On the Intestinal Juice. By Dr. Leven. (*La France Médicale*, October 21.)
Historical and Analogical Record of the Siamese Twins. By R. P. Harris, M.D. (*American Journal of Medical Sciences*, October, 1874.)
Case of Double Uterus and Vagina. By Dr. E. C. Gehrung. (*American Journal of Medical Sciences*, October, 1874.)

PATHOLOGY.

ALYSCHESKY ON PARALYSIS OF THE DIAPHRAGM AFTER SECTION OF THE PHRENIC NERVES. Number 35 of the *Berliner Klinische Wochenschrift* (August 31, 1874), contains a paper of considerable clinical interest by one of Professor Botkin's former assistants. It appears that some two years ago Dr. W. Alyschesky published an account of some of his experiments on animals, in Botkin's *Archiv für innere Krankheiten* (Band iv. 1872). These experiments were suggested by an observation made long since by Dr. Botkin, in his clinical lectures, that in patients suffering from typhus fever, the early occurring symptom of weakened abdominal or diaphragmatic respiration is always closely connected with the occurrence of hypostatic congestion in the lower lobes of the lungs. Dr. Botkin often commented on this relation, and he also drew the attention of his class to the fact, that in other cases (especially during the progress of disease) in which other inspiratory muscles were weakened, atelectasis of the lungs sometimes occurred in one part of the lung, sometimes in another. Experimental proof only was wanting of the correctness of Botkin's theory as to the causation of these disturbed conditions of nutrition of the lung; and the carrying out of the necessary experiments in the physiological laboratory was entrusted to the writer of the paper from which we quote. Most of the experiments (which exceeded 120 in number), were made on dogs. The symptoms produced in these animals were ascertained by inspection, percussion, and auscultation. In this way the following results were obtained.

1. Section or removal of a portion of the roots of the phrenic nerves in the neck was followed by complete paralysis of the diaphragm—thus confirming Professor Traube's observations, although contradicting the ordinary notions of anatomists. It was easy to see this by direct observation of the diaphragm, when the abdominal cavity was laid open in narcotised animals. After the section of the phrenics, it was then seen that during respiration

this muscle (the diaphragm) remained perfectly passive, *i. e.* it was drawn into the thorax with each inspiratory act, and pushed back into the abdomen by every expiration.

2. Paralysis of the diaphragm, whether unilateral or complete, is in no way fatal *per se*, for it is fully compensated by the increased activity of the other inspiratory muscles thus induced. Dogs thus treated often recovered so well, that an observer not in the secret would never have known than an operation usually considered dangerous had been done on them. The animals were lively, ran about briskly, and used their voices freely. After a few days, they did not even suffer from dyspnoea.

In every case in which the animals recovered from the first operation, and in which the wound healed, they lived until either purposely killed, or subjected to some fresh experiments. And if the abdominal cavity were laid open whilst such animals were alive, the diaphragm was found to be paralysed.

3. The compensation for the diminished activity of the diaphragm was effected partly by increased rapidity of the respiratory movements, and partly by a greater depth of the separate inspirations; this was most noticeable in young animals with strong muscles and an elastic thorax. In parallel experiments made on dogs by making them a unilateral hydro- or pneumo-thorax, by openings in some of the intercostal spaces—in the first case under water, in the second leaving space for air to enter freely—it was found that the urgent *besoin de respirer* was far greater than that caused by section of the phrenic nerves.

4. Observation by auscultation and percussion in animals with paralysed diaphragms, shows that the lungs still expand in their long diameter, though less than before section of the phrenics. If the pleura be laid bare by removal of the sternum and intercostal muscles, this can be convincingly shown by observation of the upper edge of the liver. This seems at first contradictory of the statement as to the position of the paralysed diaphragm in inspiration, but seems simple enough if we admit, as apparently we must, that the long diameter of the lung is expanded during inspiration, not only by the diaphragm, but also by the contraction of the muscles which expand the thorax. Observation in animals whose abdomen is laid open shows that the paralysed diaphragm is not merely sucked in, as it were, into the thorax, by the action of the other inspiratory muscles—it also becomes broadened, and flatter, and begins to fill the field of the now widened base of the thorax. The diaphragm, which begins below with the lower borders of the lower ribs, both in men and animals, does not at once desert the thoracic walls, but runs at first just parallel with these for awhile, lying close to the costal pleura. According to Luschka and Henle, this immediate juxtaposition (*Anleigen*) of the costal portion of the diaphragm with the lower part of the interior of the thoracic walls may be noted during the great pause following expiration, in the greater part of the extent of the lateral muscular part of the diaphragm, just as in the dead body; so that the pulmonary pleura and the diaphragmatic pleura lie close together for a considerable space. So, when the healthy diaphragm begins to contract, or the paralysed one is passively extended, it is plain that it must first recede from the ribs—and so in fact it does—in consequence of which the points of contact between the costal and diaphragmatic pleurae

are diminished in number, and the so-called negative pressure in the pleural cavity brings the whole process to a conclusion. The lung elongates, the upper border of the liver sinks down, just in proportion to the enlargement of the chest. In consonance with this, it was found that the excursus or movement of the lower border of the lung was least immediately after the section of the phrenic nerves, before the other inspiratory muscles had had time to compensate. Although there is no absolute diagnostic mark of paralysis of the diaphragm to be found by means of noting the percussion-dulness of the upper edge of the liver, and its movements in respiration, yet it is quite true we have diagnostic signs of a morbid condition of this muscle. By percussing the lower border of the liver, Dr. Alyschesky constantly observed a lifting of this during inspiration, and a falling during expiration, in such cases. Professor Botkin demonstrated the same thing to his class, in a clinical on a case of paralysis of the diaphragm.

5. Observation of the immediate effects of section of the phrenic nerves, on the diaphragm, when the parietal pleura was laid bare, or determination of the position of the upper or lower border of the liver during the great respiratory pause (after expiration), constantly displayed an elevation of the diaphragm from one of the lower ribs or intercostal spaces to a higher one; for example, this muscle, before section of the nerves, was noted on a level with the ninth rib, afterwards at that of the eighth rib. The explanation of this must probably be found in the tonicity (*Tonus*) of the diaphragm. If the diaphragm during the expiratory pause were quite flaccid or exhausted, and had no tonicity, the section of the nerves could scarcely render it more flaccid at this period of the respiratory act.

6. A further immediate result of section of the phrenic nerves is the occurrence of a projection of the upper part of the chest on the same side. For experiment, a young dog or rabbit with elastic chest and unossified cartilages, is best. Immediately after section of one phrenic there is a want of symmetry in the upper portion of the chest, even when the pectoral muscles are removed; and during the whole of the respiratory pause, the upper half of the chest on the side of the section is especially prominent. This, and the previously noted condition of the diaphragm, curiously confirm Botkin's views; and we are led from this to admit that there is a constant, although fluctuating state of tonicity (*Tonus*) of the inspiratory muscles of the chest, and consequently of the chest itself, regulated by the nervous system.

7. Section of the abdominal muscles in animals with paralysis of the diaphragm is followed by increased expansion of the lower thoracic region (but not in any marked degree). Dr. Alyschesky explains this by the tonicity of the expiratory muscles, allowing the cervical and upper thoracic muscles to dilate the chest and increase its long diameter, by lifting the upper ribs.

8. Admitting the existence of a constantly acting tonicity (*Tonus*) in the muscles of respiration, explains the otherwise mysterious so-called 'negative' or better 'diminished' (as compared with that of the atmosphere) pressure of the air in the cavity of the thorax. [Our space does not permit us to give the arguments in support of this. The facts relied on are:—that in an eight or eight and a half month's fœtus, careful opening of the thorax through the diaphragm on both sides without wounding the lungs, does not affect a water manometer in the

trachea. In a child four days old, with partial expansion of the lungs, the fluid rose 3·3 millimètres (one-seventh of an inch nearly). *Post mortem* 'negative' pressure is explicable through rigidity of the thorax, and to overcome this stiffening exceeds the elastic force of the lungs.

9. When animals with paralysed diaphragm were killed by pithing, any time from three days to a year after section of the phrenics, there was constantly found more or less atelectatic contraction (carnefication) of the lower lobes, and emphysema of the upper ones. In three cases (out of fifty-six) there was an hypostasis of the lower lobe, once on the right side with double paralysis—twice on the paralysed side in unilateral paresis. The atelectatic lobes were uneven on the surface, generally wrinkled, and the section was firmer and redder than in health—less crepitant, and of greater specific gravity.

10. These experiments induce us to attribute a large share of the congestive (hypostatic) appearances in disease to a weakened or paralysed condition of the diaphragm.

11. Faradisation of the exposed phrenic nerves in the neck, with the induced current, both in the divided and in the uninjured nerves, showed that [spastic] contraction of the diaphragm is not fatal, though Duchenne thought that it was. The cessation of respiration, and the arrest of the heart's action gradually vanish if the experiment be prolonged—when the nerves are not divided. This tetanic condition depends upon the sensory nerves. When the phrenics are divided, faradisation of the peripheral ends does not produce any of these phenomena. Duchenne probably left off too soon, or did not divide the nerves. [The exigencies of space have prevented reproduction of many of the author's arguments—for which reference must be made to the original paper.—*Ref.*]

W. BATHURST WOODMAN, M.D.

BIZZOZERO AND BOZZOLO ON PRIMARY TUMOURS OF THE DURA MATER.—In the lately published report of the observations made during 1873 in the pathological laboratory of the University of Turin, is an article by Drs. Bizzozero and Bozzolo on primary tumours of the dura mater, of which an abstract is given in the *Gazetta della Cliniche* for September 1. A review of the history of the subject has shown that a careful study of these tumours was necessary—1. To determine whether the growths described as epithelial were really such, or connective tissue tumours; 2. To determine the relation between them and growths which were undoubtedly of the connective tissue class; 3. To ascertain whether primary cancer of the dura mater really existed. The authors, having described the macroscopic and microscopic appearances observed in twenty-eight primary tumours of the dura mater, give the conclusions at which they have arrived. They are in general as follows.

Tumours of the dura mater are essentially formed of connective tissue fibres and cells. The fibres are composed of filaments, among which are found cells, either isolated or collected in concentrically stratified masses. They sometimes resemble tendinous tissue, but more frequently have the appearance of bundles of sclerosed connective tissue. The cells are rarely globular, fusiform, or stellate. There is generally a rather flattened nucleus, and the cell is reduced to a large and very

thin scale, like a [so-called] endothelial cell. The authors therefore call the cells *endothelioid*, assigning them a place between endothelial cells and flattened connective-tissue cells. Among these elements are found frequently, in various quantities, concentric globes of 'endothelioid' cells arranged in strata.

The most frequent change to which the filaments, the bundles, and the concentric globes are subject, is calcareous infiltration. In the bundles, the lime is deposited in the homogenous substance; in the fibres and globes the inorganic granules are deposited only in portions which have undergone sclerosis. In the concentric globes, the process of sclerosis consists of the deposition between the strata of cells of a homogenous substance, resembling in appearance and chemical properties that which forms the bundles of connective tissue, and separating the cells. In this are deposited the earthy salts, commencing generally from the central part of the globes. The presence of concentric globes among the connective bundles explains the occurrence of rounded calcareous concretions in the latter.

According to the manner in which the elements are arranged, three principal forms of tumours result. The tumours of the first form resemble alveolar sarcoma. The alveoli are circumscribed by trabeculae of connective tissue, variously anastomosed; they are either filled solely with 'endothelioid' cells, arranged in stratified masses, in the centre of which one or two concentric globes are not unfrequently observed; or they are filled with a few cells and many globes, some calcified, but more sclerosed. Blood-vessels enter the trabeculae. The second form of tumour resembles fasciculated sarcoma with fusiform cells. There is no regular fibrillar stroma; but there is a little connective tissue with cells sometimes containing granules of yellow pigment, sometimes surrounded by yellow gelatinous substance. Calcareous infiltration is scanty, and blood-vessels are relatively abundant. In the third form, the predominance of connective tissue, fibres and bundles, gives the growth the appearance of ordinary fibroma. Among the bundles are seen 'endothelioid,' or rather fusiform or rounded cells, with a few connective globes here and there; the supply of blood-vessels is scanty.

To the tumours of the first form, Drs. Bizzozero and Bozzolo give the name of 'alveolar endothelioid sarcoma,' and describe eight examples; those of the second form, of which they have met with three cases, they term 'fascicular endothelioid sarcoma'; and the third form, represented in five cases, is called 'endothelioid fibroma.' The authors also describe twelve cases of 'endothelioid fibro-sarcoma,' where the characters, both of fibroma and of sarcoma were exhibited in the same tumour. They discard the term 'psammonia,' for the reason that calcareous infiltration may occur in various kinds of tumour.

The paper is summed up with the following conclusions. 1. The tumours described as epithelial are based on connective tissue; that is to say, they are 'endothelioid growths.' 2. Tumours of the dura mater form a distinct and special group of connective-tissue growths (as Lebert has already pointed out). 3. There is no such a thing as true primary cancer of the dura mater; the tumours described under this name are 'endothelioid sarcomata.'

A. HENRY, M.D.

DISEASES OF CHILDREN.

VAN WYCK ON INFANTILE HYGIENE.—Dr. Van Wyck, in a paper on Infantile Hygiene (*Transactions of the Medical Society of the State of California during the years 1873 and 1874*) gives a great deal of practical advice. He says: ‘An infant is scarcely washed and dressed, ere the question is asked, “Doctor, what shall we give the baby to eat?” Really one would suppose that the helpless little being had made its *entrée* into this world in a famished condition, and not a moment was to be lost in relieving the terrible pangs of hunger, and averting impending death. Within the memory of some of us, the custom prevailed to a considerable extent of giving a dose of castor-oil a few hours after birth to the infant; and the physician who was bold enough to interdict so absurd and injurious a procedure was regarded by those compendia of infantile therapeutics and necessities, the nurse and grandmother, as knowing very little, if anything, about babies. Happily for the child, that practice seldom prevails now, but, in its stead, the less baneful, though by no means harmless, sweet-oil and anise-seed tea is suggested to clear the little one out. If to clear it out of the world is the intention, then there might be some show of reason in giving the drench.

‘On the birth of a child, the breasts of a mother rarely contain any milk, which, to my mind, is the strongest evidence that the child does not require that kind of nourishment. If such was not the case, the same provision would be made for it as for the lower mammals, for whom a bountiful supply is furnished from the maternal font at the moment of birth. There is, however, as we all know, or ought to, a viscid yellowish fluid, the colostrum, in the human breast at the period of child-birth, which not only contains all that is necessary for the nourishment of the infant until the lacteal secretion occurs, but also expedites the discharge of the meconium. An hour or two after birth, the child should be put to the breast, unless the labour has been a tedious or severe one, and the mother needs rest to recuperate her exhausted energies, when it can be deferred for six or eight hours without detriment to the child. Should the amount of colostrum not be sufficient to satisfy the demands of the infant, a little sweetened water is all that is required until the flow of milk; but should this not occur at the proper period, fresh cream diluted with boiling water in the proportion of one part of the former to ten of the latter, with the addition of a sufficient quantity of sugar of milk. It not unfrequently happens that the mother affords too little of the lacteal fluid, or it may be none at all. This truly unfortunate state of affairs is often a source of as much annoyance to the medical attendant as to the mother.

‘For twenty years I have discountenanced the use of diluted cow’s milk, substituting properly diluted and sweetened fresh cream, solely on the ground that a nearer approximation to women’s milk can be effected than in any other way known to me; and hence there is less liability to produce injurious effects.

‘Apart from this, I think there are other good reasons for using only the cream, which rises after the milk has stood some twenty-four hours. Very much of the milk sold in our cities and towns is adulterated in various ways, and in many instances

when such is not the case, the cows are improperly fed and cared for. By using the cream only, we avoid in the first instance the adulterating materials, and in the second, we are enabled to give a less quantity of a diseased or abnormal secretion.

‘Having procured a quart or more of the purest attainable milk, set aside for twenty-four hours, and then skim off, but not too closely, the cream. As the cream of cows differs in richness from a number of causes, it is impossible to give in figures the amount of water necessary for the proper dilution. I therefore direct the cream to be diluted with boiling water to an extent that will make it as near the richness of the mother’s milk at that period as possible, adding enough sugar of milk to bring it up to the natural standard of sweetness. I prefer the milk-sugar to cane or beet sugar, for the reason that, should acidification of the food occur, we have in the former lactic, whilst in the others acetic acid as a result. To be as explicit as possible, I should say that with the cream afforded from the milk ordinarily served to purchasers, the following formula will be found very nearly correct:—

| | Cream. Part. | Boiling Water. Parts. | Milk-Sugar. Parts. |
|---|-----------------|--------------------------|-----------------------|
| To a child one week old, in good health . . . | I | II | 25 |
| Two weeks old . . . | I | 10 | 25 |
| Three to four weeks old . . . | I | 8 | 25 |
| One to two months old . . . | I | 7 | 25 |
| Three to four months old . . . | I | 6 | 25 |
| Four to six months old . . . | I | 5 | 25 |
| Eight to ten months old . . . | I | 3 to 4 | 25 |

‘Should this prove too strong for the child, it will be necessary to make a further dilution with, if needed, an alkali to prevent acidification. A certain amount of lime-water is generally ordered to obviate this result; but experience has proved to me that the bicarbonate of potassa is preferable, for the reason that, as an antacid, it is equally efficacious, while it prevents the formation of so solid a curd, and thereby renders it more soluble. It should be added to the food in the proportion of one quarter of a grain to each fluid ounce, and if curd is found in the excreta, the amount should be doubled.

‘It may, and often is asked, why use the cream only? To my mind, the reason is perfectly obvious. It contains all of the salts of the milk; most, if not all the butter, while the excess of casein has been deposited or left in the residuum.

‘We are frequently called upon to prescribe for infants with whom the mother’s milk does not agree. This may arise from different causes. It may be owing to the character of secretion, or attributable to an abnormal condition of the digestive organs of the child. If to the former, either a wet nurse must be substituted, or, if that is impracticable, then artificial food must be given. Should the latter be the case, it will be necessary to dilute the mother’s milk to that degree which can be properly assimilated. Cases occur in which this fails, and it becomes necessary to feed the infant on whey, which is readily made by putting a piece of rennet in the milk, which (the whey) should be sweetened with sugar of milk. Should this prove too strong, as it sometimes does, it should be weakened with boiling water. This character of food is often objected to by both mother and nurse as not affording sufficient nourishment. But if the child does not lose weight and is doing well, why make any immediate change? As to the length of time this course should be persevered in, I say, just so long as any other food fails

to be digested. The strength of the food should be gradually increased according to the power of assimilation. We have all repeatedly had cases that taxed our best energies to find an article of diet which would agree with the infant, often failing in the best directed efforts. In extreme cases I have successfully used the expressed juice of raw or very rare beef, giving the child from one-half to two or three teaspoonfuls, more or less, *pro re natâ*; and had the whole body with the exception of the face rubbed with either sweet or cod-liver oil. The advantage of applications of oil is too obvious to dilate upon. Mothers often ask when they can change the food. My reply to this is, as long as the child is improving in strength and growth, and all the bodily functions are properly performed, and there being no other reasons for doing so, let well enough alone, and more especially so if the child is teething. A very common cause of gastric and intestinal derangement in infants is solely attributable to the ignorance of the mother, who can imagine no other cause than hunger for the fretfulness of the child, and consequently gives it the breast or the bottle whenever it cries. Regularity in feeding is as absolutely necessary for the well-being of the child as its food. A child of from one to two weeks old should not be allowed to take the breast or other food oftener than once in an hour and a half when awake, gradually increasing the time to every three hours, giving the stomach not only time to fully digest the food, but allowing a period of rest from its labour. In my opinion, as common a cause as almost any other of colic, is insufficient warmth, and in the majority of cases an examination will disclose a coldness and dampness of the child's feet and abdomen. A bottle of hot water placed at the foot of the cradle or crib will prove as great a source of comfort to the mother as the child. Much might be said on the subject of the fashion of infants' dress, and I think that physicians are not a little to blame in this matter, as their opinions on all matters pertaining to the welfare of children are respected and acted upon almost invariably by mothers, who, as a general rule, are ready and willing to make any sacrifice for, and do anything which will add to the welfare and comfort of, the "baby."

SURGERY.

LISTER ON A NEW ANTISEPTIC DRESSING.—At a meeting of the Edinburgh Medico-Chirurgical Society, on July 15 (*Edinburgh Medical Journal*, September, 1874) Professor Lister made a communication on a case of rodent ulcer, and a new antiseptic dressing suitable for such cases. The ulcer was large, on the face of a man forty years of age, and presented the characters of smoothness of the surface of the sore, with scantiness of discharge, and a definite but very narrow border of surrounding induration, free from inflammatory appearance, with painlessness, perfect general health of the patient, and absence of any affection of the lymphatic glands, although the disease had existed for eight years. The sore having been removed by the knife, presented on section an indurated base from $\frac{1}{20}$ to $\frac{1}{8}$ inch in thickness, of pink homogeneous aspect, and destitute of the ordinary appearances of epithelioma, but presenting in a well-marked form the 'prickle-cells' of Max Schultze, which indicated that, in this instance at least, the rodent ulcer was a

variety of epithelioma. As in the case of epithelioma generally, the cells presented their characters in an exaggerated form; and specimens of the 'prickle-cells' with large nuclei and interdigitating processes locking cell to cell, were exhibited under the microscope.

The disease involving a large extent of the cheek, both eyelids, both nostrils, a considerable portion of the upper lip and part of the lower one, it was impossible to cover the raw surface by a plastic operation. It was therefore of importance that efficient antiseptic means should be employed. But the antiseptic dressing usually employed, consisting of gauze impregnated with carbolic acid, and a layer of prepared oiled silk interposed to protect the raw surface from the irritation of the acid, would have been unsuitable here, because putrefaction would have spread from the mouth and nostrils beneath the 'protective,' which, while it excludes the irritation of carbolic acid, prevents in equal degree the penetration of its antiseptic virtue. In cases like the present, where causes of putrefaction cannot fail to gain access to some part of the wound, the antiseptic must be applied directly to the divided tissues, while at the same time it is desirable that it should be as little irritating as possible, so as not to interfere with cicatrization. These conditions were fulfilled very satisfactorily by means of an ointment, composed as follows:—Boric acid in fine powder one part, white wax one part, paraffin two parts, almond-oil two parts. The ingredients, after being mixed by melting the wax and paraffin, are stirred in a warm mortar till the mass thickens, and then set aside to cool, after which the firm substance is reduced in a cold mortar, in successive portions, to an uniform soft ointment. This is spread thin on fine rag, and when the almond-oil leaves it, as it soon does through capillary attraction of the porous external dressings, a smooth firm layer remains, consisting of blended wax and paraffin, together with the boric acid, which comes off from the skin without leaving any greasy substance adhering, and does not at all confine the discharge, which, while freely shed, is perpetually supplied with a sufficient quantity of the boric acid to ensure absence of putrefaction, while not preventing cicatrization. Such was the dressing employed in the present case, and it was beautiful to see the large raw surface, though involving sensitive structures, yet perfectly free from surrounding redness or puffiness, while the patient, except for a short time during the day of the operation, experienced no uneasiness whatever.

(It may not be out of place to mention here, that a still better application for cases of this kind is presented by an ointment composed like that above described, except that instead of one part of boric acid, it contains half the quantity of salicylic acid, the antiseptic virtues of which have been quite recently discovered by Professor Kolbe of Leipzig, who has also found out a method of manufacturing it cheaply.—Vide *Journal für Praktische Chemie*, 1874. Messrs. Macfarlan and Co. of Edinburgh, by slightly modifying Professor Kolbe's process, are now prepared to supply the acid in a state of perfect purity at a very moderate price. Salicylic acid, while possessing very remarkable antiseptic power, is even less irritating than boric acid.)

Dr. Chiene had found boric acid a most excellent antiseptic and deodoriser. He had used for eighteen months an ointment, consisting of one part of finely powdered boric acid to two parts of

the simple ointment of the Pharmacopœia. He had also used the boracic powder mixed, in the same proportions as in the ointment, with fuller's earth, China clay or kaolin, and starch. In superficial abrasions and excoriations, in eczematous and pruriginous eruptions, these powders were most efficacious.

Dr. G. W. Balfour found that cases of eczema, rupia, bed-sores, etc., made rapid progress under the boracic ointment, and that, in some very obstinate cases, a perfect recovery had eventually taken place.

Dr. Matthews Duncan, nearly a year ago, had been told by a patient of the very great relief she had obtained by the use of boracic-acid ointment in prurigo; since then, in many other cases, he had seen much advantage from its use.

BARBOSA ON A CASE OF REDUCTION OF DISLOCATED ELBOW-JOINT AFTER MORE THAN FOUR MONTHS.—In the *Correio Medico de Lisboa*, August 21, Dr. A. Barbosa relates the case of a lady, aged about forty, who fell on the palm of her left hand. The arm became much swollen; she did not, however, have medical advice, but treated the swelling herself, until she found that she could not bend the elbow. She then consulted Dr. Barbosa, who found that both bones of the forearm were dislocated backwards.

Four months and eleven days after the accident, Dr. Barbosa reduced the dislocation in the following manner. The patient being seated in a chair, and under the influence of chloroform, the chest and arm were fixed by straps fastened to a ring in the wall, and extension was made by means of pulleys for twenty minutes. At a signal from Dr. Barbosa, when it was judged that sufficient extension had been made, the extending force was released, and at the same moment the elbow was forcibly flexed while Dr. Barbosa guided the ends of the bones, thus reducing the dislocation. The coronoid process of the ulna was not fractured.

A. HENRY, M.D.

RECENT PAPERS.

On a New Operative Procedure in Cases of Strangulated Umbilical Hernia. By Dr. Demarquay. (*Bulletin Général de Thérapeutique*, October 30.)

On Preventive and Exploratory Trephining in Fracture of the Internal Table of the Skull. By M. C. Sédillot. (*La France Médicale*, October 24.)

Case of Dactylitis Syphilitica in a Child eighteen months old. By Dr. Busey. (*American Journal of Medical Sciences*, October, 1874.)

Case of Osteophytic Inflammation of the Right Radius, Resection, and Preservation of a Useful Hand. By Dr. Jewin. (*American Journal of Medical Sciences*, October, 1874.)

Two Cases of Bilateral Lithotomy. By Dr. May. (*American Journal of Medical Sciences*, October, 1874.)

DERMATOLOGY.

GEBER ON A RARE FORM OF NÆVUS.—Dr. E. Geber, of Vienna, describes in the *Vierteljahresschrift für Dermatologie und Syphilis* (1874, part i.), under the title of 'A Rare Form of Nævus,' the following remarkable case.

Mathilde Z., eight years old, was the eldest child of healthy parents, living in Silesia. She was perfectly well till she was nearly two years old, when her skin became discoloured round the eyes. This gradually increased, but was regarded as rather a

blemish than a disease. The child was, however, soon afterwards attacked by catarrhal ophthalmia with photophobia, and was carried to a doctor and suffered many things at his hands for six months. Her skin was then as piebald and her eyes as bad as ever, and by the time she was four years old the patches of pigment had overspread the face, and appeared on the neck and on one hand, while her photophobia rendered her almost blind. Small tumours also appeared on the face, and rapidly increased in size and number. The parents then took Mathilde to consult Professor Hebra in Vienna, and he, 'having seen cases of the same kind and treated them without result,' advised them to abstain from active interference. Three years later the child was still worse, and a sister (of whose case we shall speak presently) being attacked with a similar disease, they were both taken to Vienna and admitted to the General Hospital. Soon after, in June 1873, when Mathilde was seven years old, Professor Billroth excised two nodules from the cheek, which were ascertained on microscopical examination to be 'sarcomatous growths.' A month later, the wounds having healed by granulation, she was transferred to Professor Hebra's department.

Her condition was then described as follows. She was small, fairly nourished, and had abundant black hair. The scalp was covered with minute patches of discoloured skin; the face was affected in the same way, the spots varying from a pin's head to a pea in size, yellow, brown, or black in colour, flat, or slightly raised, or depressed in the centre. Scattered among these were pale, shining, depressed spots and lines [answering by description to labour-marks, or to the 'linear atrophy of the skin' described by Dr. Wilks]; and here and there were seen stigmata of dilated capillaries. The skin could be easily raised, and appeared of normal consistence, and there was plenty of subcutaneous fat. Scattered over the face were numerous nodules, the smallest not bigger than millet-seeds, the largest three lines in diameter, movable, subcutaneous, painless, and firm. These tumours were confined to the face, but the piebald appearance above described extended more or less over both upper extremities and the trunk. The legs showed numerous atrophic patches, but very little of pigment or dilated capillaries. Similar vascular spots were found on the mucous membrane of the palate and cheeks, unaccompanied by deposit of pigment. The conjunctival irritation and photophobia were as bad as ever. The internal organs appeared to be healthy.

Three months later, the vascular and pigmentary spots had diminished, and the atrophic patches increased.

Perhaps the most singular feature of the case is that Mathilde's sister, Laura Z., aged five years and six months, had suffered for a year and a half from the same remarkable affection. Two other younger children were perfectly healthy. In Laura the ophthalmia, the spots of pigment, the dilated capillaries, and the atrophic patches were like those of her sister in character and in distribution. She had a single nodule on her face. The only difference between her condition and that of her sister was that her right foot was clubbed.

Microscopical examination of pieces of the skin affected with melasma, showed that the deeper layer of epidermis was full of pigment, very thick, and prolonged in the form of conical processes into the subjacent corium. The papillary layer of the

latter was full of round cells deeply stained with pigment, and there were also numerous stellate and polygonal pigment-cells, especially around the blood-vessels. The latter were much thickened, the epithelium of the inner coat being so much increased in volume that it was often observed to block up the lumen of the arteriole. Dr. Geber describes these epithelial cells as sending out processes which grew across the vessel to the opposite side, and as usually possessing from two to four nuclei. Deposit of pigment was especially abundant around the hair-follicles and the sudoriparous and sebaceous glands. The acini of the latter were swollen. The atrophic patches were shown by microscopic examination to be what clinical observation had indicated, the results of involution of the vascular pigment-spots. Here the granulation-cells of the cutis were filled with fatty molecules or had disappeared, the pigment was fading, and the whole appearance pointed, in the author's judgment, to a premature horny metamorphosis of the epithelial cells.

Dr. Geber knows of only four other cases comparable to the two he details. One is mentioned by Mr. Erasmus Wilson (*Lectures on Dermatology*, 1871, p. 97) as one of atrophy of the skin in a patient affected with carcinoma. The others (unpublished) occurred last year in Professor Hebra's wards. Two were women of low stature and dark complexion, both the subjects of cancer. The third was also an adult, and under treatment for lupus erythematosus. Unfortunately no further description of these cases is given, but it is implied that they, like Matilda and Laura Z., were affected with patches of pigment, and dilated vessels, alternating with atrophic bands.

HARDY ON HYPERIDROSIS.—The *Gazette des Hôpitaux* (no. 94) of this year publishes a clinical lecture by M. Hardy on this affection. He insists on its independence, on the one hand, of phthisis and other general diseases; and on the other, of excessive physiological sweating from exertion. Without going as far as Professor Hebra in maintaining that this (and every other cutaneous malady) should be cured as quickly as possible, without fear of 'metastasis' or other supposed mischief, the following advice would probably not be found very different in practice. 'May we not fear sick-headaches, tuberculosis, or albuminuria as the result of suppressing excessive sweat? These effects may really ensue, but they are not inevitable. If the subjects of hyperidrosis belong to scrofulous or tubercular families, or have any other hereditary taint, it is prudent to abstain from trying to relieve them. But if they be in good health, and free from inherited tendency to disease, you need not hesitate, and the cure of your patient's infirmity will not be followed by any ill results.' M. Hardy's treatment is that introduced by Hebra (vol. i. pp. 89, 90, New Sydenham Society's Trans.). He discards all internal remedies, and applies diachylon plaster so as to bring it thoroughly into contact with every part of the foot or hand, twisting strips of it round each finger or toe. This is renewed every morning, and before reapplying it the parts are well rubbed with a piece of dry flannel. After keeping the patient in bed under this treatment for ten or twelve days, the plaister is taken off, and he is allowed to go about as usual, except that the stockings should be dusted with some absorbent powder (starch, lycopodium, or asbestos) for a short time afterwards. The two cases which

follow, exemplify the results of the Vienna treatment.

A waiter in a café, aged thirty-two, perfectly well otherwise, had suffered since childhood from hyperidrosis of the feet. This had been kept at bay by lead lotions, tannin, and lycopodium; but at last, in spite of great attention to cleanliness, the affection became so severe that he could no longer walk. He then became an inmate of St. Louis. The feet were bathed in an abundant and ill-smelling sweat; the soles looked as if they had been soaked in hot water; the furrows were much deepened, and occupied at the bottom by painful fissures, which also existed between the toes. Neither the hands, the armpits, nor any other parts of the body were affected. The treatment above described was adopted, and in a fortnight he was discharged, cured, without any ill-result. He returned to his business as a coffee-house waiter, and has had no return of his troublesome and painful complaint.

The second case was that of a healthy young woman, aged twenty-one, a domestic servant. As long as she could remember, she had been the subject of continual and abundant perspiration of the hands and feet, which was not stopped even in the severest winters, though it was increased by warm weather and by movement. Her father suffered from the same infirmity, but it was limited to his feet. She had been obliged to give up needlework, and various methods of treatment had brought little or no relief. On examination, the secretion was found to be as abundant and of as evil an odour as in the last case, but there were no chaps or fissures, and she was free from pain. Hebra's treatment was first applied to the feet; and within a fortnight there was such improvement that the patient begged that her hands might be also treated. After being two months in hospital, she was so much better that she insisted upon going home, though there was still rather more secretion than normal. Three months afterwards, there was no return of the previous condition.

P. H. PYE-SMITH, M.D.

VEIEL ON THE ERUPTION PRODUCED BY BROMIDE OF POTASSIUM.—Dr. Th. Veiel, of Canstadt, publishes in the *Vierteljahresschrift für Dermatologie und Syphilis* (1874, part i.), twelve cases of this affection. After alluding to the numerous observations by Damourette and Pelvet, Sander, Voisin, and many others in England and America as well as on the continent, he narrates his own. The patients were all young (aged from fifteen to twenty-eight), and in all the eruption had the character of acne-papules and pustules, sometimes associated with comedones. It usually affected the face and scalp, but frequently the shoulders and chest, and sometimes the limbs. In one case there were troublesome boils in addition; in another (a boy of sixteen) numerous warts appeared on his face and legs. Two other patients were attacked by wheal-like erythematous patches on the legs, from a shilling to a florin in size, which were exceedingly tender from the first, soon underwent ulceration, and did not heal until the bromide was discontinued. Ordinary erythema nodosum of the lower extremities was more common, and still more so a diffused and painful dermatitis (erythema simplex), also confined to the legs, accompanied with some pyrexia, and only disappearing when the drug was omitted. Dr. Veiel has not found that the cutaneous eruption depends on any constant quantity of bromide of potassium or length of its administration,

or on the patient's age, sex, or 'constitution.' He thinks that the preference for the hairy scalp and thighs is an available point of diagnosis between it and ordinary acne; but has observed nothing distinctive in its appearance, and has failed to detect bromine in the pustules when it was abundant in the urine. [The reporter has now under his care two patients illustrating the occurrence of the bromide eruption on the scalp and face without comedones, and the furuncular form which it sometimes assumes, as first noticed by Voisin in 1868.—*Rep.*]

OPHTHALMOLOGY AND OTOLOGY.

WREDEN ON A CASE OF PHLEBITIS OF THE SINUSES OF THE DURA MATER, CAUSED BY OTITIS.—In the *Archives of Ophthalmology and Otolaryngology*, vol. iv. no. 1, Dr. Wreden gives the history of, and remarks on, an important case of phlebitis, ending in recovery so complete, that there is no trace of any functional injury. A boy, aged fifteen, of scrofulous diathesis, who had previously suffered from inflammations of the ear, was placed under his care on account of acute otitis media, with implication of the mastoid portion of the temporal bone. While progressing favourably, the boy became one day intoxicated, the effects of which were irritation and distension of the cerebral vessels and phlebitis of the transverse sinus. The course of the phlebitis was as follows. The first symptoms referable to affection of the lateral sinus were noticed on November 27, and under treatment disappeared so rapidly, that on December 1 following, the patient insisted on driving with his mother to a railway station, from which she was about to make a journey. Twenty-four hours after this drive (December 2), the inflammation of the cerebral sinuses returned with increased violence, and spread, on December 3, downwards to the right internal jugular vein; on the 4th, upwards to the superior longitudinal sinus; on the 5th, to the left lateral sinus and the left internal jugular vein; and on the 7th, to the right cavernous sinus. Dr. Wreden's method of tracing the course of the affection to these different parts is worthy of note. The oedema was confined to the skin of the region of the ear as long as the transverse sinus alone was implicated; but when the internal jugular vein of that side became affected, the phlegmasia alba dolens extended from the mastoid process downwards over the side of the neck to the clavicle, the most painful point on pressure, and the most swollen part, corresponding to the course of the internal jugular vein. On the 3rd, puffiness of the face accompanied phlebitis of the internal jugular, which passed to 'great oedema' of the right side of the face when the large branches of the right facial became affected on the 4th; while, on the extension of the facial phlebitis to the smallest branches of the veins of the cheek, erysipelas bullosum of that region occurred, the extension to the capillaries of the forehead being accompanied by the same affection there. On December 7, there were symptoms of irritation and checked circulation in the right eye, showing the implication of the right cavernous sinus. Dr. Wreden considers the characteristic sign of thrombosis of the internal jugular vein to be a dilatation of the external jugular vein, with a distinctly visible

increase or diminution in fulness corresponding to inspiration and expiration. It is dependent on collateral blocking of the circulation, and is usually a temporary phenomenon. The thrombosis of the internal jugular vein was also marked by clonic and tonic spasms of the sterno-cleido-mastoid and trapezius muscles due to irritation of the spinal accessory nerve from the thrombosis of the sinus of the vein while passing together through the jugular foramen. Repeated violent bleedings from the nose and epileptiform convulsions marked the implication of the superior longitudinal sinus, the former being due to back-pressure on the nasal veins, and the latter 'to capillary hæmorrhages in the cortical substance of the convexity of both posterior cerebral lobes.' Wreden points out that, in all the recorded cases of thrombosis of the upper sinus, those individuals who presented after death these lesions of the gray substance were subject to epileptiform attacks during life. Paralysis of the abducent nerve, unilateral headache, epiphora, photophobia, ptosis, oedema of the eyelids and conjunctiva, and weakening of the power of vision, showed affections of the cavernous sinus, and consequent irritation of the sixth, fifth, and third nerves, and intra-ocular venous congestion by mechanical hyperæmia.

In the course of the paper the author makes a few well-placed remarks on the terms 'thrombosis' and 'phlebitis.' He thinks the term thrombosis ought to be applied to those cases which owe their origin to mechanical influences, such as a diminution of the propelling power of the heart, impeded expansion of the lungs and consequently back-pressure on the sinus, compression of the sinus, or coagulation in afferent or efferent veins, and extension of the coagulation to the sinus, unaccompanied by fever or pyæmic symptoms; while the term 'phlebitis' he would limit to inflammatory processes of the sinuses, propagated from parts in the vicinity, by direct traumatic injury, or from the transference of the process from large veins communicating with it, and accompanied by violent fever and often giving rise to pyæmic or septicæmic symptoms. W. LAIDLAW PURVES.

MISCELLANY.

PRIZES.—The Royal Lombardian Institute of Science and Literature announces the following prizes for competition:—*Cagnola prizes* (ordinary)—1. For 1875: Transfusion of blood in man. 2. For 1876: Electrotherapy applied to the resolution of tumours; each prize consists of 1,500 lire (60*l.*) and a gold medal of the value of 20*l.* 3. For 1876: Drunkenness in Italy as compared with other countries; prize, 2,000 lire (80*l.*) and a gold medal of the value of 20*l.* *Cagnola prizes* (extraordinary) for 1875:—1. The nature of miasmata and contagia. 2. The direction of balloons. 3. The method of preventing the counterfeiting of writing; each prize consists of 1,500 lire, and a gold medal value 500 lire. *Secco Commemo prizes*, each 864 lire (about 34*l.* 11*s.*). For 1875: Determination of the action of luminous rays of different colours on vegetation and on animal nutrition; determination of the best antifermentatives and antiseptics, and the best disinfectants and deodorants, whether single or compound. For 1877: Indications of the best method of cremation as a substitute for inhumation. *Castiglioni prize* (extraordinary), 600 lire (24*l.*): To point out whether, as a prophylaxis against small-pox, preference should be given to animal or to humanised vaccination. The essays in competition for each of the above-mentioned prizes must be sent in on or before the last day of February in the respective

years. *Fossati* prizes, each 2,000 lire (80%). For 1875: The history of the progress of the anatomy and physiology of the cerebrum in the present age, with special reference to *Gall's* doctrine. For 1877: Experimental clinic and pathology of the cerebellum, with reference to the functions assigned to it by the doctrine of *Gall*. The essays must be sent in by April 1. Foreigners as well as Italians (except actual members of the Royal Institute), may compete for any of these prizes. Essays must be written in either the Italian, French, or Latin languages, and must be sent post-free within the time specified to the secretary of the institute, at the Brera Palace, Milan; they must be anonymous, and signed with a motto, the name of the author being communicated in a closed envelope. Competitors are recommended to state distinctly for which of the prizes they are candidates. The prizes will be conferred at a public meeting on August 7 next following the closure of the competition.

SPONTANEOUS COMBUSTION.—The vexed question of the possibility of spontaneous combustion has again been lately discussed before the Paris Société de Chirurgie, in a paper by M. Chassagniol of Brest. The author stated that spontaneous combustion was first mentioned in 1692, since which time it had found a certain number of partisans in France. The Germans, however, with M. Casper at their head, entirely deny its possibility. M. de Chassagniol has endeavoured to sift the truth from the conflicting accounts on record, and has, for this purpose, tried to find some authentic facts. He has not, however, been able to do so in any scientific records; no medical man, no person of authority has ever been present at a case of spontaneous combustion of the human body. Many authors have affirmed that the human body burned on these occasions with a blue flame, and diffused an empyreumatic smell, but these characteristics are met with in many kinds of combustion. Instances have been sought for in alcohol-drinkers, especially amongst women, but hitherto without success. It is really a question whether the possibility of spontaneous combustion of the human body can be theoretically demonstrated. The original idea was that the alcohol in drinkers took fire. Dead bodies, or portions of dead bodies, however, burn but very slowly, even after having been steeped in alcohol for some days. After having injected alcohol into the veins of dogs, it was found impossible to obtain combustion of these animals; electric combustion was then tried, and finally, the presence in the human body of a gas which would either light up spontaneously, or on a light being brought near to it, was sought for. Numerous analyses have not been able to show the presence of sulphuretted hydrogen in the different parts of the human body. In later times it has been a question if a resemblance could not be found between the spontaneous combustion of stacks of hay and straw, and that of the human body, but there is really no analogy between them. M. Chassagniol is, therefore, necessarily brought to the conclusion that the fact of spontaneous combustion is not made out; and M. Horteloup, who read his paper for him before the Société de Chirurgie, strongly doubts if any case of spontaneous combustion in the human subject worthy of serious attention has ever been brought under notice.

DR. KLEIN'S RESEARCHES ON THE TYPHOID GERM. The interesting observations of Dr. Klein on the subject, to which Professor Tyndall has prominently directed public attention, have been briefly summarised recently in the *Medical Times and Gazette*. Sections of the hardened ileum of typhoid patients show, according to him, that an active absorption of peculiar organisms goes on in the mucous membrane over, and especially around, the Peyer's patches. These organisms are carried thence into the lymph-canals and the venules of the mucous membrane. In the earliest case which he examined, where death had occurred on the seventh day after the first appearance of headache, the crypts of Lieberkühn were found to contain peculiar greenish-brown spheroidal corpuscles of very

variable size, the largest being twice or three times as big as a human red blood-corpuscle, and the small ones only half or a quarter as large. Where these bodies lie closely grouped together, as is generally the case, they appear of a dark olive-green colour; and the corpuscles at the edge of such masses, or where they are completely isolated, exhibit transitional forms, due to incomplete subdivision. Similar corpuscles are found in the tissue of the mucous membrane, where they appear to be contained in the lymphoid cells of the adenoid tissue. The minute veins, and also some of the lymphatic vessels, contain large numbers of them, and in the former they subdivide rapidly, so as to form greenish-yellow granular micrococci, arranged in groups of two or four, as well as in rings and other figures. The micrococci have their origin in a mycelium whose filaments are branched and apparently smooth, and of a greenish-yellow colour. These organisms occur not only in the neighbourhood of Peyer's patches, which are moderately swollen, but also in parts of the mucous membrane which to the naked eye show no alteration except slight general swelling, although microscopically the follicles of the patches in one case were found to have undergone the following changes. The central part of the follicle, especially where it lies in the submucous tissue, was converted into a spongy substance by the formation of spaces around its blood-vessels, their wall consisting of the adenoid tissue with which the latter are sheathed. The lymphoid cells of this tissue were converted into large granular bodies containing two to five, or even more nuclei, which greatly resembled the nuclei of endothelial cells. In several of the follicles true giant-cells were seen. In a later stage (twelfth day) the mucous membrane itself showed somewhat similar changes, and the multinuclear lymphoid cells were found in its venules and in those of the submucous tissue, as well as in the lymphatics of the latter. Dr. Klein is unable at present to give a decided opinion whether the above alterations are directly dependent on the presence of the micrococci, or whether they must be considered as secondary to changes in the vascular system. The passage of micrococci inwards from the free surface of the intestine can be traced through the epithelium into the substance of the mucous membrane, and especially towards the crypts of Lieberkühn; and this occurs in parts which are at some distance from the swollen Peyer's patches, and which appear nearly or quite unaltered to the naked eye.

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The London Medical Record.

WEDNESDAY, NOVEMBER 18, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

HAMMOND ON THE EFFECTS OF ALCOHOL ON THE NERVOUS SYSTEM.

The New York *Psychological and Medico-Legal Journal* has long been published under the name of the *Psychological Journal* simply, but as in the new series it is intended to give more attention to medico-legal subjects, the title has been altered. The first number contains an inaugural address, delivered by Dr. William Hammond as president of the New York Neurological Society, on the effects of alcohol on the nervous system. He maintains that the action of alcohol in small quantities retards the destruction of tissue and supplies material for the generation of force. One of the products of tissue-metamorphosis is carbonic acid. Many years ago, Dr. Prout ascertained that after the use of alcohol the amount of carbonic acid excreted by the lungs was considerably reduced. Within the last few years other investigators have arrived at the same conclusion, and have extended their inquiries to the other excretions of the system. Thus Böcker ascertained that under the use of alcohol there was a very decided diminution in the quantity of the urine eliminated, and in the amount of its solid constituents.

Desirous of ascertaining the facts for himself, Dr. Hammond instituted a series of experiments calculated to determine the real value of alcohol as an aliment or a substitute for aliment. These experiments were performed on himself, and consisted of three series: 1st, the influence of alcohol when the food was just sufficient for the wants of the organism; 2nd, when it was not sufficient; 3rd, when it was more than sufficient.

Four drachms of alcohol, diluted with an equal quantity of water, were taken at each meal. Dr. Hammond not being an habitual drinker of alcoholic liquors in any form, the experiments were not open to the objection that they were performed upon a person hardened to the use of intoxicating beverages. During the first series, when the food was such as to maintain the weight of the body at its normal standard, it was found as the result of experiments, continued for five days, during which time sixty drachms of alcohol had been taken, that the weight of the body had increased from 226.40 pounds to 226.85 pounds. In the same period the amount of carbonic acid and aqueous vapour exhaled from the lungs had undergone diminution, as had likewise the quantity of urine and its solid constituents. While these experiments lasted, the general health was somewhat disturbed; the pulse was increased to an average of 90 per minute, and was fuller and stronger than usual, and there was an indisposition to exertion of any kind.

The inference to be drawn from these experiments

is that, when the system is supplied with an abundance of food, and when there are no special circumstances existing which render the use of alcohol advisable, its employment as a beverage is not to be commended.

In the second series of investigations, the food was such as to cause an average decrease in the weight of the body of .28 of a pound daily. Under the use of the alcohol not only was this last overcome, but there was an average increase of .03 of a pound daily. The effects on the excretions were similar to those which ensued in the course of the experiments of the first series. But, unlike the first series, no abnormal results were produced in the general working of the organism. It is in similar cases, therefore, that the proper use of alcohol is to be commended; that is, when the quantity of food is not such as to allow the due performance of such physical or mental labour as may be necessary; or what amounts to the same thing, when the digestive or assimilative functions are not so efficiently performed as to cause the digestion and appropriation of a sufficient quantity of food ingested to meet the requirements of the system.

In the third set of experiments, in which more food was taken than was necessary, the ill effects of the alcohol were well marked. Headache was constantly present, the sleep was disturbed, the pulse was increased in frequency and force, and there was a general feeling of *malaise*. Notwithstanding all these abnormal phenomena, the body continued to increase in weight above the ratio which existed before the alcohol was taken, and the excretions were diminished in quantity.

'After such results,' says the experimenter, 'are we not justified in regarding alcohol as food? Alcohol retards the destruction of tissue; food supplies the material for new tissue. Now, as alcohol stops the full tide of this decay, it is very evident that it must furnish the force which is developed under its use, but how it does so is not clear. Lallemand, Perrin, and Duroy contend that it is excreted from the system unaltered. If this were true of all the alcohol ingested, its action would be limited to its effects upon the nervous system, produced by actual contact with the nervous tissues; but there is no more reason to suppose that all the alcohol taken into the system is thus excreted, than there is for supposing that all the carbon taken in food is excreted from the skin and lungs as carbonic acid. It is not at all improbable that alcohol itself furnishes the force directly, by entering into combination with the first products of tissue-decay, whereby they are again assimilated, without being excreted as urea, uric acid, etc. Many of these bodies are highly nitrogenous, and under certain circumstances might yield their nitrogen to the construction of new tissues. Upon this hypothesis, and upon this alone, so far as I can perceive, can be reconciled the facts that an increase of force and a diminution of the products of the decay of tissue attend upon the ingestion of alcohol.'

J. LOCKHART CLARKE, M.D.

BRAUN-FERNWALD ON ARRESTED DEVELOPMENT OF THE UTERUS, VAGINA, AND VESTIBULUM.

In the *Wiener Medizinische Wochenschrift* for September 5 and 12, 1874, Professor Braun-Fernwald has an interesting article on this subject.

1. The absence of the uterus in fully grown women is generally combined with deficiency of the entire vagina, but with perfect development of the vestibulum, the mammae, and of the mons Veneris. It is by no means a rare accident, the writer having seen no fewer than eleven cases. The genitals in these cases terminate in a *cul-de-sac* at the hymen; the vestibulum presents a pouch about the size of a thimble; the most careful bimanual examination *per rectum* can either discover no signs of an uterus or vagina, or occasionally a filbert-sized rudiment; the menstrual molimen is absent. The patients seek medical aid, as a rule, for *impotentia cœundi*, sterility, or an uncontrollable dribbling away of urine. Some years ago he met with three persons labouring under urinary fistulæ, with absence of the vagina and uterus, with an opening into the bladder an inch wide, arising from rupture of the urethra through violent coitus. They were cured by paring the edges and bringing the raw surfaces together by silk sutures. It is impossible to make a vagina in this affection. Every attempt to do so by making a free space between the bladder and rectum with the finger failed, through inability of keeping the parts separate, and preventing them from uniting again.

2. The arrest of the growth of the uterus is either congenital or acquired, its seat being indicated by a muscular or fibrous structure. The vagina ends in a *cul-de-sac* or communicates with a rudimentary uterus, whose shape may be various, round, smooth, and arched, generally, however, composed of two horns, which are either solid or hollow bodies, about the size of a millet-seed or pea, and lined with mucous membrane (*Uterus bipartitus* of Mayer and Rokitsky). The external genitals are, as a rule, regular in form; the ovaries are normal or abnormal. Connection may take place by the vagina or by the usually patulous urethra. Through closure of the uterine opening of the Fallopian tubes, a tubohæmatocœle may happen. The sterility that occurs is always incurable.

The *Uterus fetalis seu infantilis* arises from some disturbance in the continuous development of the organ. Its cervix may be from one to two inches long; the body, however, is always very short, about the size of a hazel-nut, with very thin walls. The infravaginal portion of the cervix may be a mere rudiment, or very short, with exceedingly small external but wide internal os. It is quite the exception for the vagina to be of normal width. The tubes are usually perfectly well formed; the ovaries, however, are absent or very small; the Graafian vesicles are absent, or the contained ova do not arrive at maturity. Menstruation is either entirely deficient, or is seldom, irregular, scanty, and more or less painful. Coitus is possible, but sterility is incurable. From the walls of the fetal or infantile uterus being so thin, it is also styled *Uterus membranaceus*, and from its coming on in young persons after delivery, *Atrophia uteri præcox*. Dr. Braun-Fernwald has repeatedly seen, with procreation at the eighteenth year, incurable amenorrhœa and sterility proceed from this degeneration of the uterus. At puberty the growth of the uterus is also left behind, without, however, retaining its infantile form; it is throughout small (*uterus parvus*) both body and cervix, also the infravaginal portions are deficiently developed. This defect exists with perfect development of the ovaries, vagina, and breasts; at times it is attributable to constitutional disorders. Menstruation is not always absent; an *uterus parvus* may conceive, and bear at

the full time. The rudimentary or small uterus is diagnosed by vaginal or rectal examination, by measurement of the uterus by the uterine sound, or by passing a catheter into the bladder at the same time that the fore-finger is introduced *per rectum*. Amenorrhœa proceeding from this cause is generally not cured by emmenagogues, the uterine douche, or electricity. Only in slight deviations from the normal does menstruation at times follow these medications. The writer has seen even in *uterus parvus*, without any medication whatever, menstruation occur with an universal and vigorous development of its body.

3. In *Uterus duplex et unicornis*, defective growth of the female generative organs proceeds mostly from abnormal changes of Müller's ducts in embryonic life, which, as is known, through unfolding and fusion of their contiguous surfaces form the vagina, the uterus, and the Fallopian tubes. Hence it arises that a remarkable reciprocal harmony is not unfrequently found to exist between the several defective developments of these structures, whereas the malformations of the ovaries and of the external genitals which do not arise from Müller's ducts, repeatedly differ. Pregnancy can only occur in partial obliteration of Müller's ducts, with free communication to the ovaries. According to the degree of the defect in development gestation is either prematurely with much danger interrupted, or terminates physiologically at full time, or produces various disturbances.

a. *Uterus duplex separatus, seu Uterus didelphys* (Kussmaul, Klob) is described as an arrest of development, where on each side an uterus unicornis exists, tolerably separated from each other, with a vagina imperfectly developed, or, when met with, usually bipartite. Uterus didelphys occurs only in children incapable of an independent existence. It is not a real reduplication, but a division through the keeping asunder of the dual components of this organ. If the fusion of the middle section of Müller's ducts do not proceed in the normal way, an *Uterus bicornis* or *bilocularis* will be produced. The uterine cavities in this instance either reach from the fundus to the vaginal orifice as two distinct channels, or are split up into two or mere cavities by a short membranous partition. Each cavity has one Fallopian tube and one ovary. The mere width of the opening between the two uterine cavities does not serve to distinguish an uterus bicornis from a bilocularis, but only the clearly demonstrable or imperceptible separation of the upper surface of the uterus.

b. The extreme degree of *Uterus bicornis*, that is, where from a defect in the blending together the two horns with a double vaginal portion open into a single or double vagina, occurs very rarely. Formerly, a deep sulcus between the two horns was falsely described as constituting a double uterus, but a uterus bicornis never has two ovaries or two Fallopian tubes to each cavity.

Kussmaul distinguishes two forms of uterus bicornis, according as the separation of the uterus into its two halves by means of a conjoint partition-wall, which extends downwards from the point of junction of two diverging horns, is complete (*uterus bicornis duplex*) or not (*uterus bicornis infra simplex seu semiduplex, seu unicollis*). The bicornate uterus always distinguishes itself from the uterus didelphys by the two uterine halves appearing always externally, or at least in the lower section, more or less united and blended together, whereas in uterus didelphys they are completely separated and apart.

The isthmus between the two horns is horizontal; beneath it the uterine horns unite together (Rokitansky). The vaginal portion of the uterus bicornis duplex is either single; the septum dividing its cavity, from being thin, becoming thicker and stronger as it ascends; or each horn possesses its own vaginal portion. Should one horn become impregnated it enlarges, and its walls correspond in thickness to the usual gravid uterus. The pregnant horn rises up into the abdominal cavity, and both retain their same relative position in their proportional growth as they did when unimpregnated. Should the fecund horn be the more developed, it ascends perpendicularly upwards into the abdominal cavity, and the empty one hangs at its side below it.

Professor Braun relates an interesting case, where a pregnant woman had a tumour about the size of a fist in Douglas's pouch; the vagina was narrow and the os pushed upwards and forwards. The great elasticity and the changeable consistence of this tumour caused a connection between it and the uterus to be suspected. To make certain, the finger was pushed up about one centimètre above the external os, and in passing backwards came upon an opening about one centimètre wide, into which the finger could be inserted to about the distance of four centimètres, and the decidual membrane could be made out; it was, in fact, an empty horn prolapsed beneath the os of the pregnant one. It was reduced, and the patient went her full time and accomplished a normal puerperium. If the less developed horn become pregnant, it passes obliquely up into the abdomen, and the empty horn has in this case occasionally a perpendicular position. In the five cases observed by himself of uterus bicornis there was never twins, nor was extraction required; all the children were born living, and the puerperium ran a normal course.

Rupture of the uterus or habitual abortion has never been observed by Professor Braun-Fernwald; but this has not been the case with Rokitansky.

In uterus bicornis unicollis, pregnancy and birth have, as a rule, no disturbing influence.

Habitual shoulder-presentations only at times occur, when, and in those instances where, the less deeply the septum descends upon the internal os, the wider and shorter the uterus becomes, and the shallower the sulcus of the fundus is made out through the abdominal walls. He performed turning three times in a case of uterus bicornis unicollis for shoulder-presentation; the last was fatal; the necropsy showed the cause.

c. The unhorned partite uterus, the *Uterus bilocularis* of Rokitansky, *Uterus septus* of Kussmaul, consists in a division of the cavity of an externally single uterus by means of a more or less deep descending perpendicular septum springing from a normal fundus uteri.

When the septum is complete throughout the whole length of the uterus, Kussmaul calls it *Uterus septus duplex*; when incomplete, *Uterus subseptus*. In isolated cases the vagina is also divided by a continuation of the uterine septum, descending more or less low down its cavity.

As a rule the vagina is single; conception, gestation, and parturition are possible, and are generally attended with no particular disturbances.

Out of the eight cases of delivery with uterus bilocularis observed by the author, he only finds three instances worthy of special notice; the first, when with uterus septus duplex and vagina duplex there

was sterility, which was not removable by splitting up the septum to the uterine cavity; the second in which three normal deliveries took place with perfect preservation of the vaginal septum; and the third, where in a premature breech-case the cervix of the empty half was patulous and penetrable for some distance, and the vagina wide and large, whereas the vaginal half that led to the gravid loculus was small and contracted. The septum was stretched over the presenting part of the fœtus like a veil.

d. The *Uterus unicornis* consists of one horn only, the second arrested horn being attached to it, or entirely absent. It presents a long cylindrical spindle-shaped, curved lank body stretching towards its corresponding side, and terminating gradually in a point, disappearing in the Fallopian tube, on which a normal ovary hangs in the usual way. Its cervix is always very small. Pregnancy may occur with this abnormality, and terminate normally. The accessory horn may be impregnated through the migration of an ovum, but it ends in rupture.

In atresia of one of the mouths of the womb, both in uterus and in vagina duplex, hæmatometra and hæmatocolpos may occur in the imperforate horn. An unilateral hæmatometra in uterus bicornis was observed by Leroy; the attention of physicians was attracted to it by Rokitansky; but it was proved by Schröder, that some cases described as hæmatocele anteuterina were referable to atresia with duplication of the vagina.

As in uterus duplex without atresia, so also here the two uterine halves can act separately in menstruation; either both sides may be the seat of hæmorrhage, or only one. If menstruation occur only in the closed half, the recognition of hæmatometra is facilitated by the apparently existing amenorrhœa. If the menstrual flux occur in both halves, it is very easy to be deceived by the unarrested flow of blood from the patent cavity. Through the retention of blood in the closed cavity a tumour is formed, which lies to the side of the vagina of the freely discharging horn, and at its lower extremity bulging into the vagina. The patent horn of the uterus bicornis is not in apposition along its whole length with the tumour, but at its upper end is deflected from it.

The intimate connection of the tumour with the uterus, shown by palpation and the sound, prevents it from being confounded with an ovarian cyst. Later on, the tumour may perforate the other uterine half (Veit).

More frequently hæmatocolpos lateralis occurs in a bipartite vagina, of which Veit has made three very instructive observations, and has depicted it in the following manner. 'A fluctuating swelling presented itself on the side of the vagina; the cervix had a fixed wall-like position; the vault of the vagina existed only on one side; the os had a horseshoe opening or a slit running from before backwards; the tumour was livid or pale red, projected into the open entrance of the vagina, occupied not only one side of it, but extended as far as the anterior half of the vestibulum; there were also dysmenorrhœa and retention of urine present.' Dr. Braun-Fernwald has seen a case of hæmatocolpos and vagina duplex in a woman at two confinements, which caused an obstruction to delivery, and had to be removed by puncture through the septum.

Cases of pyometra and pyokolpos, as also hydro-metra lateralis, as consequence of congenital closure of a rudimentary vagina in uterus duplex, have been

published by Breisky, and over twenty cases of hæmatometra, and hæmatokolpos by Rokitansky, Credé, Herzfelder, Hegar, Thügel, C. Braun, Beronius, Simon, Breslau, Olshausen, Holst, Jones, Churchill, Schröder, Passauer, Neugebauer, and Freund.

To diagnose uterus and vagina duplex, complicated with hæmatometra, Simon's method of high rectal exploration suits admirably.

Hæmatometra in uterus bicornis, with a rudimentary horn, has not, as yet, been described either anatomically or on the living subject. Hegar has, however, recently made public two most instructive observations, in which a swelling with a firm elliptical pedicle arose from the isthmus uteri, and on puncturing it coffee-coloured blood could be drawn off.

The lowest grade at which defective blending of Müller's ducts can arrive are the membranous bands occasionally met with in the dome of the vagina, more rarely in the cervix alone, in the middle of the vagina, under the name of a duplicate hymen, still more frequently, however, as hymen bifenestratus.

In all cases of defective development, menstruation occurs simultaneously in both halves. The hypertrophied substance of the uterus, the effect of pregnancy, expands in the direction of the septum. They terminate usually in simple pregnancy. When an ovum develops in a well-formed horn it often arrives at a regular delivery at full time; when the growth, however, of the uterine tissue is deficient, it occasions abortion, premature labour, feeble pains, false presentations, and in exceptional cases spontaneous rupture of the uterus.

Atresia vulvæ seu labialis, consists either of adhesion of the posterior two-thirds of the labia majora, or of a genuine abnormal lengthening of the perinæum, in which impregnation may occur with an imperforate hymen.

The latest explanation propounded by Wernich and Fehling respecting the mode in which conception takes place in stenosis of the vagina, or of the vestibulum, is that in cohabitation an erection of the lower section of the uterus occurs, which is coupled with an ejection of the cervical fluid similar to that of the penis. They support this view on the apparent phenomenon of erection experienced by the examining finger, the cervix becoming hard and firm to the touch; still further, Rouget and Henle have in fact verified the erectile apparatus, which exhibits great similarity with that of the vagina and of the ovary. At the moment of the greatest excitation an ejection of the cervical fluid takes place, and in the act of relaxation the deposited fluid in the vagina is immediately sucked up.

In cohabitation, conformably with experience, an erection and momentary depression of the uterus happens; it can be still more distinctly observed during the process of expulsion of the placenta.

Where impregnation is effected with imperforate hymen, its rationale is as follows. The cervix descends on a level with the aperture in the hymen, the cervical fluid is ejected into the opening, intermixed with the semen deposited on the vestibulum; the spermatozoa, during the relaxation of the cervix, are in the backward flow of the cervical fluid drawn up into the uterine cavity. In an article of the author's, in the *Medizinische Wochenschrift*, he has still more nearly, from personal observation, proved this to be a fact.

The diagnosis of the above-named conditions of the uterus is generally very difficult, and at times im-

possible. An uterus bicornis may be either ascertained by aid of palpation and percussion of the abdomen, or may be suspected when there are bipartite vagina, a double cervix, abnormal tumours, and the sudden appearance of internal hæmorrhage. The uterine sound should never be passed in the gravid uterus to aid a diagnosis.

The treatment should not be directed to the condition, but emergencies should be dealt with as they arise on the usual established rules. Whenever any membranous bands or the septum of a double vagina impede delivery, they should be slit up with the scissors; the hæmorrhage, if any, is either arrested by the advancing fœtus, by cold applications, or a tampon.

W. C. GRIGG, M.D.

ON THE TREATMENT BY MINERAL WATERS OF CHRONIC DISEASES, AND ON THE PRINCIPAL SOURCES ADAPTED TO THE VARIOUS MORBID CONDITIONS. BY M. GUBLER.*

(Concluded from page 710.)

XV. The Treatment of Syphilis.

Waters render various services in cases of syphilis. Sometimes they are a test which makes the diagnosis positive; sometimes they attack directly the morbid symptoms; at other times they contribute to restore a constitution broken down by the poison. Where there is a doubt as to whether symptoms are referable to syphilis, or where even in the absence of symptoms there is a suspicion of a taint of it, certain mineral waters are made use of as a sort of touchstone, in order to bring out an eruptive *poussée*, which will end in an eruption characteristic of the disease. Aix-les-Bains and Luchon are the places most resorted to for this purpose, but any hot sulphur-waters will answer.

It has been said that sulphur-waters, without impeding the effects of the concurrent use of mercury, prevent any disagreeable consequences of its use, and therefore it is common to employ the two together. I do not share the illusions of some distinguished physicians on this head, and I believe that, if the waters prevent the disagreeable results of mercury, they at the same time counteract its beneficial and curative action. The restorative waters are the ones more rationally indicated in syphilitic cachexia, which has succeeded the secondary and tertiary stages of the malady. In such cases pure iron waters, or some with chloride of sodium, or sea-water itself, will do much to restore health. Are there any waters really curative of syphilitic conditions? The thing is not impossible, but there has been as yet no satisfactory demonstration of the fact. Aulus in Ariège has long had a special reputation in these cases, and boasts of many cures. I wish there were detailed accounts of them. A recent analysis of the waters of Aulus by a skilful hydrologist, Dr. Garrigou, may account for this, as he has discovered in it a minute quantity of chromium, a remedy of late recommended in the treatment of syphilis.

[M. Gubler's views on the treatment of syphilis are much less sanguine than the ordinary ones, which have recently been explained at some length by Dr. Reumont. (See LONDON MEDICAL RECORD, June 10.) I fear that the traces of chromium at Aulus will not inspire much confidence.—Tr.]

* *Journal de Thérapeutique*, no. 10 et seq.

XVI. *Treatment of Intermittent Fever and of Paludal Cachexia.*

No mineral water is of use in arresting paroxysms of marsh-fever. The use of arsenic in fever is very limited, and even Bourboule does not contain it in sufficient quantity to be of use in such cases. But, on the other hand, many waters are well adapted for removing the sequelæ of malarious poisoning. Encausse and Campagne (warm, the first containing sulphate of lime, the last indifferent) contrary to what might be expected from their composition, boast of dispersing these sequelæ; but other waters claim to do so more effectively, in right both of experience and of theory. At the head of these come the iron waters, gaseous or not; and the complete saline ones of volcanic districts. Forges, Spa, Cassuejols of the first class; Chateauneuf, Royat, Saint-Mart, Saint-Nectaire of the second.

The arsenical waters are also useful, especially when they contain a sufficient quantity of the salts wanted for the blood. In this point of view Bourboule occupies an important place, as also most of the other less arsenical waters of Auvergne. Next to them come the alkaline iron waters of Boulou, Neyrac, Marcols, etc., and the chloride of sodium waters of Bourbonne, Salins, Uriage, along with an immense number of salt waters, which can be made use of in marsh cachexy.

[It is obvious that waters of these classes are abundant in other countries; Bourboule, owing to its unusually large amount of arsenic, being the only exception.—*Tr.*]

XVII. *Treatment of Surgical Affections.*

This subject has already been indirectly touched on, under the head of chloride of sodium and of indifferent waters, as we have seen that prolonged baths at Nérès cause a considerable relaxation of old cicatrices and of old thickenings, the result of inflammation whether caused by burns or by gouty or rheumatic attacks—and that the stimulant chloride of sodium and sulphur waters resolve inflammatory congestions, from which ankyloses, white swellings, and other lesions result. Whether these lesions have been occasioned by constitutional causes or by violence, such as blows and wounds, they can be successfully operated on by the waters of Aix-les-Bains, Gréoulx, Ax, Luchon, and Barèges, or of the two Salins, Salies, Bourbonne, Balaruc, Bourbon, or Chateauneuf, Saint-Nectaire, etc., or by hot sea baths, with or without the addition of sea-weed.

Resolving treatment may, strictly speaking, be confined to the use of hot thermal waters, without reference to their mineralisation. But the stimulant effects of a highly mineralised water are required, when it is wished to produce general excitement, to cause a flow towards the seat of a cold engorgement, which it is desirable to stir up, either with the view of producing more active resolution, or of setting up inflammatory action, which will aid the separation of bone, or the extraction of bullets or of foreign bodies. Bourbonne, Bagnères, and Gréoulx are the best for such purposes.

These powerful waters are, however, contraindicated in the cure of traumatic lesions of the viscera, when there are anal fistulas or hæmorrhoids, in subjects inclined to sanguineous congestion, or to hæmorrhages, or to inflammation of the bowels—and in all who have cerebral or cardiac affections.

Many retractions and deformities of limbs and

false ankyloses yield to prolonged *illutatio*n, without the aid of very high temperature, for instance at Barbotan, Dax, or Saint-Amand.

XVIII. *On Parallel Corrective or Auxiliary Treatment.*

With surgical affections we have concluded the list of maladies suited for mineral-water treatment. But hitherto I have only indicated one cure and one water for each category of diseased action, taken in the abstract, as if the morbid condition were in its nature fixed and invariable, and required always and only the same water, at least during the appropriate season for its use. But chronic diseases often change nearly as rapidly as acute ones; sometimes the aspect of things alters completely from week to week in the tuberculous or the rheumatic; and therefore it may be only rational, to vary the mineral water employed, according to the variation of the symptoms.

Besides, the cases for which we prescribe waters, are by no means simple. The principal malady is almost always complicated, either with other lesions, or with diathetic causes, or with prevailing or consecutive disturbance of the general health. Such circumstances necessarily demand the simultaneous use of varied mineral-water treatment.

Further, mineral waters are not such entirely harmless agents as never to injure by excess of their physiological action; this should be guarded against by the judicious use of the water, and, if necessary, may have to be met by the use of a mineral water of partially antagonistic powers.

In such cases we may pursue two parallel modes of treatment, which are either auxiliary and complementary, or are corrective of each other. For instance, anæmias, loss of tone, and cachectic conditions are so frequently the result of chronic diathetic affections, or even of such as were primarily local, that it is often necessary to add the use of restorative waters to that of those specially directed against the principal malady. Thus, nothing is more common, than for a patient going through a course of chloride of sodium or sulphur or other water, to drink a steel water of the same, or of another station.

Aix-les-Bains, Bagnoles (Orne), Chatel Guyon, Luchon, Saint-Nectaire, Uriage, each has an iron spring; and Plombières (besides having a weak one of its own) makes use of the waters of Bussang, where unfortunately there is no establishment. If we are often obliged to treat in this subsidiary way cases of anæmia going through special water-treatment for more important affections, it also happens sometimes, that the chlorosis may be accompanied by some concomitant affection, such as the remains of a bronchitis, irritability of the mucous membrane of the respiratory organs, by some strumous, eczematous, or rheumatic complication. In such a case, we must choose a station where the restorative water is placed side by side with a sulphur or a chloride of sodium one, unless the same water, for instance, that of Sylvanès, of Chateauneuf, or of Saint-Nectaire, present an union of two active principles. This is also the case with the sulphur and chloride of sodium waters of Uriage, and the similar ones with some iodine of Gréoulx, which are particularly suitable, when catarrh of the respiratory surface is associated with scrofula.

In the case of affections which require at once purgative and alterative treatment, we can also use two remedies simultaneously. Thus, skin-affections

in fat plethoric subjects] are treated at Saint-Gervais, not only with the sulphur source, but also with the one containing chloride of sodium and sulphate of soda. Montmirail offers a similar combination in its sulphide of lime water and its green purgative source. As to examples of parallel corrective cures, the debilitating effects of protracted tepid baths, or of very hot baths, or the weakening effects of strong alkaline waters, may be met by the simultaneous use of restorative waters, common iron ones, or more complex ones. At Vals the use of the iron and arsenical waters of Dominique and of Saint-Louis, has been ordered to counteract the debilitating effect of the strong alkaline waters. Other carbonate of soda waters carry their antidote with them, in containing iron at the same time. Such are the Source Mesdames at Vichy, the waters of Boulou, Neyrac, and Marcols, which ought to be ordered for feeble, gouty, or gravelly patients.

XIX. Of Successive Cures, Auxiliary or Supplementary.

Generally speaking, a patient resorts in one season only to one station, not so much because he is wearied with having gone through a complete course, as because the physician considers that the one set of waters which he has chosen should be sufficient for the cure. There are, however, many circumstances under which the improvement would be more rapid, and the success more assured, if two mineral waters were employed, one after the other, possessing qualities more or less different, but supplementary of each other, and each able of itself to contribute to the therapeutic result. Why not subject an eczematous or herpetic patient, loaded with fat, first to a reducing treatment by purgative waters, and then to the ordinary cure by sulphur, arsenic, or alkaline ones? Why not make an anæmic dyspeptic use, in the first place, iron alkaline waters, and next strongly restorative ones, or, in such a case, these same waters in reversed order? Or, take patients suffering from calculous, hepatic, or renal colics. In such cases, we ought first to attempt to favour the evacuation of concretions, or to diminish the amount of matter that can form concretions, by means of reducing treatment; in the second place, we ought to endeavour to prevent the formation of concretions, by making the bile more fluid, and the urine more watery. No doubt, up to a certain point it is possible to obtain the same objects, by using one mineral water, which acts, according to the dose, as a cathartic or as an alterative; but the first indication would be better fulfilled by specially purgative waters, and the last by waters essentially dialytic. It would, therefore, be more advantageous for patients suffering from a calculous affection of liver or kidneys to commence by a cure at Brides, Chatel Guyon, Santenay, or Montmirail, and to end by a visit to Contrexéville, Vittel, Vals, or Vichy. I recommend such a course, having often ordered it with most satisfactory results. I have observed equally good results after a season at Salins-de-Moûtiers, followed by a half cure at Aix in Savoy, in the case of lymphatic patients suffering from joint-affections.

In like manner, it would be advisable to submit cases of erethic tuberculosis, in the first instance to the milder action of the waters of Mont Dore or Royat, and afterwards to the sulphur lime waters of Allevard, Enghien, Saint-Honoré, etc., or later to the

action of the sulphide of soda waters of Amélie, Bonnes, Cauterêts, Luchon, Vernet. And a seaside cure might also be employed to supplement mineral waters. Thus, in a great number of cases this double course of treatment would be followed with decided success. What one has to avoid in such cases, is the fatigue to the patient from change of place and change of treatment. To guard against this as much as possible, we may try to select stations possessing two classes of waters, or at least two districts possessing wells that may be auxiliary and supplemental to each other. In the first category are Saint-Gervais, and Montmirail; in the latter, Andabre joined to Sylvanès, Vichy to Chatel Guyon, or even Royat to Saint-Honoré.

[Our author here sketches an outline of the German *Curs* and *Nachcurs*. The practical difficulty is to find English patients, unless those who think themselves seriously ill, who will spare time for two courses, or who are inclined to enter on them. The most popular *Nachcur*, a visit to Switzerland or to some Alpine station, is not mentioned by M. Gubler—but the French travel much less than English, Americans, or Germans.—Tr.]

XX. The Duration of Mineral-Water Cures.

The length of almost every water-cure is fixed at twenty-one days, having reference to the menstrual period, according to the old doctrine. But it is obvious, that no such arbitrary limit can be adhered to. The length of the cure must vary according to the action of the waters, and the object which we wish to attain. It may be reduced to ten days in the case of some purgative waters, and to fifteen for some simply laxative ones. At some places, as at Chatel Guyon, it is usual to divide the cure into two unequal periods, the first of ten days, and the second of only five, with an interval of quiet.

A minimum of ten to fifteen days would also be sufficient, if we choose to be contented with the stimulating action of the very hot waters, which are employed with the view of rousing torpor of the system, or of vivifying a dry and squamous eruption, to bring out an old leaven of syphilis, or to exercise any disturbing action. Such is the real or supposed test for syphilis at Luchon and other places. The cure at Mont Dore, or at Aix-les-Bains, seldom extends beyond sixteen days.

But if we wish to give to a disturbed economy a new and persistent direction, whether by establishing a new habit, or by modifying the action of the organs by the mineral principles which permeate their parenchyma, or by altering the composition and molecular structure of histological elements, it is indispensable to continue for a lengthened period the internal use of waters. The effects of mere contact with new waters may be sudden, but they are not permanent. The phenomena of impregnation of the system with therapeutic agents are slower in appearing, and also in being effaced. Twenty days are certainly never too long a time for producing such effects. Nevertheless, some have thought that the period of cure might be shortened by using forced doses. In Spain the course is often reduced to nine days, and this was formerly the practice at Bonnes. But, although enjoying the shadow of the great authority of Bordeu, this practice is radically irrational, for the factor of time cannot be replaced in molecular action by mass. Besides, too large doses produce the troublesome effects of the *poussée*, or of thermal fever, which, far from indicating saturation of the system, or that our therapeutic objects have

been attained, only show that the system has rebelled against the alterative agent.

Thus the nine-day cures should be repudiated by intelligent physicians, who will continue to order a three-weeks' course of sulphur, chloride of sodium, and most other waters. This space of time is, in many cases, insufficient to cause the deep-seated changes in the organs, on which the cure of the morbid symptoms depends. Certain alterative cures, as in constitutional maladies, such as scrofula, tuberculosis, darte, must be continued often for more than thirty or thirty-five days, allowing for a few days' rest, and for recruiting between the first season of twenty days, and the second of ten or fifteen, which ought to complete the cure.

I always advise a long stay at La Malou, at Bourbonne, Salies, Salins, Saint-Nectaire, La Bourboule, and at stations where they treat local affections of a torpid character, which are dependent on constitutional causes.

XXI. *On the Season most favourable for Mineral-Water Cures.*

There are troublesome prejudices on this subject, which it would be well to destroy. July and August appear to be the two lucky months during which drinkers and bathers press in serried columns to all stations, French and foreign, as if mineral waters cured only under the dog-star. It is all very well for prospectuses to say, 'Open from May to September;' no one hearkens to the appeal. Is this simply a matter of fashion? Not entirely so. Many stations are in the mountains, and do not in the earlier months offer a climate favourable to invalids, for instance Barèges, Cauterêts, Gastein, Mont Dore, Saint-Moritz, etc. Nevertheless, at Cauterêts, at Mont Dore, and especially at Eaux Bonnes, the second half of June and the first half of September, often offer conditions of climate most favourable to patients, more favourable indeed than in the extreme heat of summer, which is apt to bring on intestinal complications, and by its enervating influence add to the exhaustion of a thermal cure.

A great number of French stations also, situated at slight elevations, or in the more southern latitudes, admit a greater extension of the bath season. In a middle zone we find Pougues, Nérès, Evaux, the two Bourbons, Vichy, Aix-les-Bains, Marlioz, etc., where treatment would not only be possible, but more advantageous in May, June, and September, than during the official seasons.

Going south, we find on the side of the Alps, Montmirail, Aix-en-Provence, Digne, and Gréoulx; on the side of the Pyrenees, Bagnères, Adour, Dax, Salies, Saint-Christau, Cambo, and many other mineral waters, which ought to be frequented in May, June, September, and October, and to be entirely abandoned in July and August.

We possess among our stations some really winter ones—Le Vernet and Amélie-les-Bains, in the Eastern Pyrenees; and nothing would be easier than to establish some new ones in some privileged nooks of Provence, as Saint-Martin de Lantosqua, Alpes Maritimes, and in the neighbourhood of Draguignan, where there are sulphur and saline springs.

In reality, patients might profit for a much longer time than people usually suppose, by the resources offered by mineral waters. Even when I write, at the end of August, many stations are accessible, and even favourable for prolonged treatment.

Patients suffering from liver or from gravel may stay at Vichy during the whole of September, and at Vals till October.

Strumous patients may profit by Salies de Bearn and Arcachon till late in the season; so also nervous cases by Bagnères de Bigorre, or by Aix-en-Provence. If necessary, the thermal waters and the mud of Dax might be used in rheumatism all through the winter; and still more might paralytic cases be treated at the same season at Balaruc.

September and October are the two months to select, for the treatment of chronic nervous affections, at La Malou; and the same may be said of Digne and Gréoulx, for that of chronic diseases of the joints, of the respiratory organs, and of scrofulous affections. Lastly, Amélie and Le Vernet offer efficacious treatment all through the winter to those who suffer from asthma, catarrh, or tubercles.

In finishing these articles, I am happy to think, that I have pointed out to practitioners a supplement to therapeutic treatment, to bath practitioners in particular an extension of their field of action, and that I have been able to offer more consoling prospects to patients.

[I think these last observations about season very valuable. There are no patients so entirely tied down to particular seasons, by considerations of fashion, of usage, or of business engagements, as the English. A number of the *Saison d'Hiver aux Thermes de Dax*, now before me, shows that everything is being done to make a winter-station of Dax, with its abundant thermal waters. It lies between Arcachon and Pau, and has a large new establishment, a hotel containing rooms for inhalation and laryngeal douches, and also mud-baths for rheumatic, neuralgic, and paralytic patients. There are many difficulties in the way of forming mineral-water winter-stations in Provence, as suggested by M. Gubler in the conclusion of his lucid summary. Summer-stations in the hills behind Nice are much more wanted for invalids requiring a cooler climate, and who cannot conveniently go to a distance. One of them is the Saint-Martin mentioned above, of which Smollett gave some account under the name of Rocabiliare; but there is a want of houses, of accommodation, and of society now, as in his day.—Tr.]

J. MACPHERSON, M.D.

ANATOMY AND PHYSIOLOGY.

SALOMON ON THE FORMATION OF GLYCOGEN IN THE LIVER.—Virchow's *Archiv* (Band li. Heft 3) contains a long article by Dr. George Salomon of Berlin on this subject. Our space will only allow us to give a brief abstract, and we must refer to the original for almost all details. The author begins by stating that the past year has been a fruitful one as regards our knowledge of glycogeny. Brücke's improved method of estimating glycogen (*Sitzungsberichte der Wiener Akad.* Band lxi.) was a great step gained as regards accuracy. The subject naturally divides itself into a physiological and a pathological division; and Dr. Salomon occupies himself chiefly with the former, as the only sure basis for our study of the latter. He determined to investigate the glycogenic action of certain articles of food, etc.; and, for the purposes of his experiments, he defines a glycogen-former, or glycogenetic substance to be 'a substance which, being brought into the stomach, has the pro-

perty of increasing the glycogen of the liver.' To eliminate errors from incidental but ill-understood conditions as far as possible, he made many experiments, and chose but few alimentary substances. Luchsinger's interesting experiments (*Pflüger's Archiv*, Bd. viii.) are vitiated by the small number of experiments on each substance. The rabbits chosen by Salomon were killed by cutting the throat; the liver was at once removed, and rapidly cut into a vessel of boiling water by scissors. After brief boiling, the water was poured off, and gently heated over a fire in a fresh pan. The liver-substance from the first pan was then rubbed down in a hot mortar with a little sand, and the 'broth' thus formed added to the water of the first boiling. The whole was then cooked for ten to fifteen minutes, the hot decoction (0.75 to 1 litre = 26 to 35 ounces) poured on a filter of coarse linen; and the residue of liver was boiled with successive portions of 100 to 200 cubic centimètres (3 to 6 ounces nearly) of water, as long as the fluid showed opalescence. Lastly, the whole was collected on the filter and washed. The collected filtrate was concentrated to 150 or 200 cubic centimètres (4½ to 6 oz. nearly), treated after Brücke's method with iodide of mercury and hydrochloric acid; and the fluid was filtered from the precipitate mixed with two or three volumes of alcohol at 92 per cent. The glycogen thus obtained was placed on a filter, extracted with ether, dried at 115° to 120° (Cent. ?) and weighed. Salomon does not claim absolute accuracy for these experiments. Luchsinger (*Centralblatt für die Med. Wissenschaften*, 1872, no. 9) has shown how very difficult it is to completely free the liver from sugar and glycogen by large bulks of water. Salomon confirms this. In one experiment in which the glycogen yield was 0.43 gramme (= 6.6 grains), there were traces of grape-sugar found after six boilings and successive extracts with alcohol. A similar difficulty was found with glycogen. He suggests, that boiling the liver with potash might obviate this, since Bernard's experiments have recently been confirmed by Weiss (*Sitzungsberichte der Wiener Akademie*, July, 1870, Band lxiv.), and show that glycogen resists the action of potash. Other precautions are mentioned in the paper. He states that the bulk of the precipitate by Brücke's process consists of a substance soluble in hot soda-lye, which is again precipitated by cautious addition of acetic acid. He once obtained a precipitate by hydrochloric acid alone, which was coarsely flocculent, and soon settled, but acquired no increased bulk by adding the mercury solution.

Experiments were also made as to the amount of sugar in the alcoholic extracts. The animals were allowed water only, and no food, for from two to three and a half days.

[The mean of Dock's, Weiss's, and Salomon's experiments on seven animals fasting from one and a half days was six-tenths of a grain only, traces only being found twice, and no trace once. Dr. Salomon's conclusions are as follows.

1. The liver contains sugar during life.
2. Gelatine is a glycogen-former.
3. So is olive-oil, in less degree.
4. Milk-sugar and grape-sugar are also glycogen-formers. Mannite is apparently not so.
5. The primary acetyl-derivative [Monacetyl saccharose = $C_{12}H_{21}(C_2H_3O)O_{11}$] of cane-sugar is decomposed in animal bodies into acetic acid and sugar: the former is probably burnt up, the latter acts in the ordinary way as a glycogen-former.

Some of his own experiments with gum, grape-sugar and glycerine were vitiated by accidental causes. Similar objections (idiosyncrasies, disease in subjects of experiments, etc.) lie against the experiments of others. He considers the results of Bernard, and indeed of nearly all who experimented before last year (and did not use Brücke's process), as vitiated by the enormously high figures, due to admixtures of various kinds. The whole paper is of extreme interest to physiologists and practical physicians.—*Rep.*] W. BATHURST WOODMAN, M.D.

EWALD ON GASES IN HUMAN TRANSUDATIONS. A. C. Ewald (Reichert and Du Bois-Reymond's *Archiv*, 1873: Abstract in *Centralblatt für die Medizin. Wissenschaften*, no. 37, 1874) obtained the fluid to be investigated by means of a trocar, pointed with an elastic tube, and caught it directly over mercury, in the apparatus of Pflüger provided with three stopcocks. By this arrangement the admixture of air was completely excluded. As the pumping out of the gases could be always immediately undertaken, the tube was cooled in several experiments with ice-water, in order to avoid decomposition. The results of this method, compared with those obtained in the usual way, showed that this procedure was superfluous. For the analyses, pleuritic effusions and transudations in different stages were exclusively employed. Ascitic fluids were avoided, because in them there was a possibility of diffusion from the intestinal canal. The author divides the exudations employed into purely serous exudations, chronic exudations, gradually becoming purulent, and acute purulent exudations. To these, on the one side, belong the oedemata, on the other, the pure pus of abscesses. The quantity of gases in oedematous fluid does not vary greatly from physiological lymph. The loosely combined, carbonic acid in Case 1 was 16.91 vol. per cent., in 2, 16.63; the firmly combined in Case 1, 6.95, in 2, 23.7. The serous pleuritic exudations showed an increase of the whole quantity of carbonic acid, with the duration of the condition; it increased from 33.84 vol. per cent. to 63.84 per cent. Only in one case was there an exception; but in this case pneumo-thorax coexisted, and carbonic acid could be removed by diffusion. The more purulent exudations showed that the value for the carbonic acid, however, depends upon another factor; the sum of carbonic acid contained in an exudation is, *ceteris paribus*, smaller, the more its condition approximates to pure pus. The carbonic acid is almost exclusively contained in pus-serum; the more the latter exceeds in proportion to the pus-corpuscles, the less must be the value for the carbonic acid. Concerning the increase of carbonic acid with the duration in the more serous exudations, it is shown that it is chiefly the firmly combined carbonic acid which is first expelled by the addition of acids; here there is quite a regular increase. For the explanation of these facts, there come into consideration, 1, the passage of loosely combined carbonic acid into firmly combined carbonic acid in consequence of the increase of the partial pressure; 2. the addition of carbonates by endosmose; 3. the absorption of watery constituents. In the purulent exudations the quantity of fixed carbonic acid sinks continually, until in the pus of an abscess it equals the oxygen. There are two ways of explaining these phenomena; increase of the alkalinity and the capability of pus-corpuscles

to expel carbonic acid as the red blood-corpuscles do. An increase of alkalinity could not be proved, so that there only remains the second possibility; and by special experiments it was, in fact, shown that the pus-corpuscles—pus free of gases—are capable, on pumping out, of expelling carbonic acid from pure simple carbonate of soda, quite in the same way as mineral acids. Small quantities of oxygen and nitrogen could be detected in all cases, and the quantity of oxygen and nitrogen was under 1·8 per cent. As the quantity of these two sorts of gas is nearly the same as in blood-serum, and does not increase with the addition of pus-corpuscles in proportion to the serum, it follows that the pus-corpuscles and white blood-corpuscles contain no oxygen, or only traces, *i.e.* are not oxygen-carriers like the red ones. Hydrogen, sulphuretted hydrogen, and carburetted hydrogen were found once only in a putrid exudation. The reaction of oedematous fluid, as well as of the serous exudations, was always alkaline; that of pronouncedly purulent exudations, as well as of pure pus, more or less acid. The specific gravity varied from 1005 to 1026.

SCHMIDT ON THE DISSOCIATION OF OXY-HÆMOGLOBIN.—Albert Schmidt (*Centralblatt für die Medicin. Wissenschaften*, no. 46), under Preyer's direction, examined the heart-blood of guinea-pigs and frogs micro-spectroscopically with exclusion of air, and then tested the oxygen-extracting action of different tissues. The following facts were noted.

I. The cardiac blood of *living* foetal guinea-pigs constantly contains oxy-hæmoglobin before the first respiration.

II. The cardiac blood of grown-up animals contains:—

(a) Much oxy-hæmoglobin after death by, 1, hunger (in warm-blooded animals); 2, freezing (in warm-blooded animals); 3, blowing of air into the jugular veins; 4, poisoning with hydrocyanic acid (in the frog.)

(b) Hæmoglobin free of oxygen, and only traces of or no oxy-hæmoglobin after death by, 1, closure of the trachea and drowning; 2, pneumothorax; 3, puncture in the respiratory centre; 4, blows on the head; 5, respiration of rarefied air; 6, respiration of hot air; 7, freezing in the frog; 8, poisoning with nitrobenzol, chloroform, alcohol, arsenuretted hydrogen, iodine, physostigmin, strychnine, quinine, nicotin, potash-salt-petre (frog), soda-salt-petre (frog.).

(c) At one time oxy-hæmoglobin is in excess, at another hæmoglobin free of oxygen; or both may be in nearly equal quantities after death by, 1, poisoning with arsenious acid (in warm-blooded animals); 2, poisoning with prussic acid (*ditto*); 3, injection of steinölin (petroleum) into the jugular vein.

III. Many experiments on dissociation made with tissues gave the following results.

Muscles of the frog which were tetanised continually, dissociated oxy-hæmoglobin, after removal from the body (*ceteris paribus*), more quickly than those which were not active, but not so quickly as dead muscles, and the dissociation set in before the change of the spectrum by lactic acid.

Brain and liver withdrew oxygen from the oxy-hæmoglobin very rapidly in watery solutions, the latter itself at a temperature of 0° Cent.

Fungi placed in solutions of blood produced a rapid dissociation and then changes of the spectrum, such as are produced by dilute acids.

Quinine prevents the dissociation of oxy-hæmoglobin by fungi, but not that through brain and liver substance.

LANDOIS ON THE INFLUENCE OF THE GASEOUS CONTENTS ON THE SOLUBILITY OF THE BLOOD-CORPUSCLES.—Professor Landois of Greifswald, (*Centralblatt für die Medicin. Wissenschaften*, no. 27, 1874), says that if different portions of the same blood, be treated with carbonic acid, oxygen, and nitrous oxide, the red blood-corpuscles exhibit great varieties with regard to their solubility. The corpuscles charged with carbonic acid are dissolved much sooner than the others. Certain reagents which are unable to dissolve blood charged with other gases, produce the lake colour at once in blood charged with carbonic acid. The reagents employed were salts of the bile-acids, very dilute solution of chloride of sodium, and serum of dog's blood for the blood of rabbits and guinea-pigs. Blood charged with nitrous oxide stands between that charged with carbonic acid and that charged with carbonic oxide. The blood-corpuscles of all sorts of blood become round before their solution, and show exceedingly fine points. Perhaps the condition of the hæmoglobin in the cells at the time may account for this.

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LANDOIS ON THE FORMATION OF FIBRIN FROM THE RED BLOOD-CORPUSCLES.—In a second part of the same paper, M. Landois describes the formation of fibrin as being dependent on the dissolved corpuscles. If a drop of defibrinated rabbit-blood be brought into a drop of frog's serum, the cells aggregate together, and become sticky on their surfaces. The cells soon become globular, and those cells lying towards the periphery allow the blood-colouring matter to pass out. This discolouring gradually extends towards the centre of the drop, and at last only a heap of stroma remains. The stroma-substance is very tough and viscid. At first the contours of the cells can be detected; and, when the stroma has been agitated to and fro, the cellular contours disappear, and viscous fibres and stripes are observed. Step by step the formation of fibrous masses from the dissolved mammalian cells can be observed. The author thinks this fibrin should be called 'stroma-fibrin' in opposition to the ordinary fibrin or plasma-fibrin, which is formed without solution of the blood-corpuscles. The two kinds of fibrin may possibly be chemically distinguished from each other. In transfusion, if dissolution of the cells occur, then, of course, the formation of stroma-fibrin may take place. The coagulation occurs the sooner, the more serous the blood. Animals in a state of asphyxia, into whom heterogeneous blood was introduced, showed the most extensive coagulation.

PAULOWSKY ON THE COURSE OF THE FIBRES IN THE POSTERIOR COMMISSURE OF THE BRAIN.—In Siebold and Kölliker's *Zeitschrift für Wissenschaftliche Zoologie*, vol. xxiv. Heft 3 (September 16, 1874), Dr. Paulowsky records the result of his investigations into the structure of the so-called posterior commissure of the brain. This body has been variously described; most authors, however, believing that its fibres run transversely between the two thalami optici, thus serving to connect the two hemispheres of the brain. According to Arnold, the commissure really consists of two factors, one of which belongs to the 'Schleifenregion' the other

to the hemispheres. [The 'Schleife' answers to the *lemniscus* of Reil. The first factor probably answers to the commissure of Wernekinck.—*Rep.*] Luys has remarked a crossing of the nerve-fibres in the commissure. Meynert describes this structure as the crossing place of the anterior and posterior crura of the corpora quadrigemina, which, after crossing, pass over into the tegmentum ('Haube') of the crus cerebri. Besides this it is in communication with the pineal gland and the 'ganglion habenulæ.'

Dr. Paulowsky made his observations on preparations from man, sheep, dogs, and rabbits. He arrives at the following conclusions.

1. The so-called posterior commissure consists of coarse fibres running down from the brain to the tegmentum of the crus cerebri.

2. These fibres have a four-fold origin—

(a) In the pineal gland ;

(β) In the frontal lobe of the brain (through the anterior peduncle of the thalamus) ;

(γ) In the temporal lobe and in the fissure of Sylvius (through the inferior peduncle) ; and

(δ) Probably in the thalamus itself.

3. In the tegmentum one portion of the bundle of fibres runs with the 'Schleife,' while another lies to the inner side of the same.

4. Commissural, or bridge-like fibres, do not exist at all in the posterior commissure.

5. Therefore the term 'commissura posterior' is an incorrect one, and it would be more advisable to call this region of the brain the crossed tract of the tegmentum—'tractus cruciatus tegmenti.'

J. C. GALTON.

BAJARDI ON ANOMALIES OF ORIGIN OF THE SUPERIOR THYROID AND LINGUAL ARTERIES.—In a paper in the *Gazzetta delle Cliniche* for October 13, Dr. D. Bajardi states that, while preparing an adult subject for lessons in operative surgery, he found that the right superior thyroid artery, in place of arising as usual from the external carotid, had its origin from the common carotid a little more than an inch from its division. It then passed slightly upwards behind the sterno-hyoid and omo-hyoid muscles, and was distributed to the thyroid body. The left superior thyroid also arose from the common carotid, but at the level of the enlargement which the vessel presents before its division. The vessel on the right side was much more slender than the other, and did not give off the superior laryngeal, which arose from the external carotid. The bifurcation of the common carotid was a little below the level of the upper margin of the thyroid cartilage.

Dr. Bajardi observes that the presence of the superior thyroid artery in the situation described might be a source of embarrassment to the surgeon in proceeding to tie the common carotid artery, as, seeing the thyroid artery in the wound, he might suppose that he had not cut down on the common carotid. He would also be embarrassed if his object were to tie the superior thyroid itself, not finding it in its normal situation.

In 117 cases, Dr. Bajardi has found the superior thyroid arising from the common carotid in 37 or 31.62 per cent. This proportion appears greater than is generally admitted ; Quain, for instance, gives 41 cases in 292, or 14.38 per cent. In the thirty-seven cases, the thyroid artery arose in thirty-three at the level of the carotid sinus, and in four only lower down. In one case, Dr. Bajardi found a

double superior thyroid artery ; both branches arose from the common carotid, one 0.7 inch, the other 0.3 inch below the bifurcation. In four cases, he has found the superior thyroid having a common origin with the lingual ; in two cases from the common, and in two from the external carotid artery.

In an adult female subject, the right lingual artery came off from the common carotid about two-fifths of an inch below the bifurcation, while the superior thyroid had its origin from the external carotid muscle higher than usual. The lingual artery ascended along the lower side of the carotid as high as the greater course of the hyoid bone, and then, passing behind the hyo-glossus muscle, entered the tongue. The dorsal artery was not supplied from the lingual, but from the facial artery.

Dr. Bajardi has in one case seen the lingual artery have a common origin with the superior maxillary.

A. HENRY, M.D.

MEDICINE.

LOCKHART CLARKE AND GOWERS ON A CASE OF PSEUDO-HYPERTROPHIC MUSCULAR PARALYSIS.—This case (by Dr. Lockhart Clarke and Dr. Gowers, in vol. lvii. of the *Medico-Chirurgical Transactions*) presents for our consideration several points of great interest, both clinically and pathologically. In the first place, here is no history of an hereditary disposition to be obtained. Both the parents of the child are living and in good health, and no other of their children has manifested any disposition towards the malady. An hereditary or family tendency has been pronounced by some observers to be a feature of this affection of the muscles, as also in muscular atrophy. In the next place, the sex and period of life are noteworthy. The disease is essentially one of male childhood, although the reporter has at the present time a case under observation in which the symptoms first manifested themselves after puberty.

Another point observable in the case before us is the obscurity in which the affection has hitherto been involved, so that it has, until recently, escaped recognition.

Referring to the history before us, we read that 'in infancy the boy was well nourished and apparently healthy, but began to walk later than other children, not until he was two and a half or three years old, and then in a peculiar way. About that time, his calves were observed by his mother to be unusually large. As he grew older the peculiarity in his walk became more marked ; he carried his body bent slightly forward, and walked with a swinging movement. He was never able to walk far, but when five years old could walk, in the manner described, about a mile. At this age the calves were noticed to be very large, the thighs were thought to be about the normal size ; the arms were fleshy, but were not noticed to be particularly large. About the age of eight years the heels were observed to be somewhat drawn up. As this increased he became unable to walk, and after giving up walking he had some difficulty in straightening the knee-joints, and the elevation of the heels increased.' Without quoting all the details of the history of this case, we remark that so little was its pathology understood, that in 1867 Sir William Fergusson advised, and in 1869 Mr. Wm. Adams performed

division of both Achilles tendons. By the help of steel supports carried up to the hips he was for a time enabled to walk with assistance; the benefit, however, was, after all, but slight, and in the same year, the supports being discontinued, the boy never stood or walked again. From this time there was a steady loss of power with wasting of muscles both in the upper and lower extremities. In March, 1873, having reached the age of fourteen years, the boy died with pulmonary disease. With the utmost respect for the opinions of two so highly distinguished surgeons, there existed from the first, pathological reasons against the success of any surgical operation.

Dr. Friederich, of Berlin, in his exhaustive treatise on muscular atrophy, expresses the opinion that it is essentially the same disease as muscular atrophy, with certain modifications arising out of an excess of fatty and connective tissues. The case before us bears out this conclusion, since wasting of the muscles, not only of the upper extremities, as commonly met with in this form of the disease, but of the lower extremities also, including even the calves, was prominently noted before the intercurrent lung-disease terminated the life of the sufferer. The authors, however, add that in no case hitherto recorded has atrophy of the muscles of the calves, previously increased in size, been noted.

The *post mortem* examination, as related by Drs. Lockhart Clarke and Gowers, seems to confirm this last-named inference. 'Each gastrocnemius muscle presented the appearance of a mass of adipose tissue. On section, it was pale yellow and greasy to the touch. No trace of red tint could be seen in it. Under the microscope it consisted for the most part of distended fat-cells, which lay between, and separated widely, bundles of muscular fibre. The fat-cells were quite similar to those of an ordinary lipoma; they varied in size from $\frac{1}{250}$ to $\frac{1}{1000}$ of an inch. The muscular fibres ran, several together, through the adipose tissue. Some were of normal size, others much less; their diameter varied from $\frac{1}{1000}$ to $\frac{1}{3500}$ of an inch.' The muscular fibres were in some parts but slightly changed; in some the striation had disappeared, and was replaced by granules distributed uniformly throughout the fibre; in other instances the fibres had become mere sheaths.

The inch and a half of new tendo Achillis of each leg was readily distinguishable by the grey colour and translucency of its tissue as compared with the opaque pearly lustre of the old tendon, while the line of junction both above and below was traceable in the dovetailing of the new with the old fibres.

With reference to the nervous centres, it is noted that the microscope revealed varied and extensive lesions of the spinal cord. 'These lesions began from above downwards, at the level of the second cervical nerves. There was disintegration in a greater or less degree of the lateral grey network which is so conspicuous in this region between the corpus cornu posterioris and the tractus intermediolateralis, and through which the spinal accessory nerve makes its way into that tract. The tract itself was to a certain extent in a state of incipient disintegration, and on one side was, in many sections, traversed by a dilated and congested blood-vessel around which the tissue had begun to suffer. The white columns were

not perceptibly altered, but one lateral half of the anterior white commissure was entirely destroyed, and replaced by granular *débris*, by exudations and extravasated blood-corpuscles, which also filled the triangular space at the bottom of the anterior fissure. On descending through the rest of the cervical region the same kind of morbid changes, to a greater or less extent, were found at different levels, while the anterior and central grey substances on each side was the seat of extensive disintegrations. A similar lesion existed in some of the posterior nerve-roots.' Areas of disintegration were traced as low down as the conus medullaris—in fact, in no region of the cord does it appear that a section could be made that was free from very grave pathological appearances. Among these, it is mentioned that 'both the lateral and posterior white columns were in many sections much damaged by sclerosis, consisting of a variable degree of disintegration of the myelin or white substance of the longitudinal fibres.'—[Do the authors by this last description intend to express the presence of *miliary* sclerosis? If so, their description is at variance with that of this form of degeneration as given by Drs. Batty Tuke and Rutherford, and the present writer.*—*Rep.*]

W. B. KESTEVEN.

SCULL ON PHTHISIS WITH UNCONSCIOUSNESS FOR FIFTEEN MONTHS.—Dr. B. F. Scull reports in the *American Medical Weekly* (quoted in the *New York Medical Times*, August 15), a case in which a man who had been suffering from severe bronchitis, with symptoms of incipient phthisis, for several months, fell into a condition resembling catalepsy. Although eating and drinking whatever was offered, he seemed entirely indifferent as to the character of the food, and wholly unconscious of his surroundings, of his condition, of what he was doing, or of what was being done for him. His fæces were passed into a diaper, and it was necessary to keep him cleansed without any co-operation on his part. After remaining in this condition for fifteen months, he suddenly recovered consciousness, but fell into a rapid decline, and died a year later.

NELSON ON DIPHTHERIA TREATED BY LOCAL APPLICATION OF SUBSULPHATE OF IRON.—Dr. A. W. Nelson, of New London, Connecticut, extols (*New York Medical Journal*, January, 1874) the efficacy of the local application of persulphate of iron in diphtheria. In mild cases he uses liquor ferri subsulphatis, and pure water or glycerin, in equal parts, or two of the latter to one of the former; in severe cases he uses the liquor ferri subsulphatis in its full strength. Vomiting may be induced by it at first, but this is rather beneficial. For subsidiary gargles, water, chlorate of potass solution, and lime are, he considers, all useful. The iron as a gargle is disagreeable, from blackening the teeth, and staining white clothes. These effects are best obviated by employing a large camel's-hair pencil well washed after using. Of forty cases treated by this method there were, he says, only three deaths. Of the three deaths, one was moribund when first seen; the second was not treated locally with the subsulphate.

* See *Edinburgh Medical Journal*, 1868 and 1869; also *British and Foreign Medico-Chirurgical Review*, 1869, 1873, and 1874; *St. Bartholomew's Hospital Reports*, vol. viii.; and *Journal of Mental Science*, 1871.

SURGERY.

DENEFFE AND VAN WETTER ON ANÆSTHESIA BY INTRAVENOUS INJECTION OF CHLORAL: ABLATION OF CANCER OF RECTUM.—Professor Deneffe and Dr. Van Wetter (*Bulletin de l'Académie Royale de Médecine de Belgique*) describe the case of M. De W., who had suffered several months from a recurrence of cancer in the rectum, for which he had been operated upon three years previously.

On June 4, at 5.34 P.M., a gold trocar and cannula was passed into the radial vein, and the injection of a solution of ten grammes of chloral in thirty of water was commenced. The syringe was provided with a very fine sieve, to prevent any solid particles from entering the blood. The solution was injected in small quantities every two or three minutes; but the anæsthesia was not complete till 6.15, *i.e.* forty minutes after the beginning of the injection. The quantity injected now amounted to 7.50 grammes (about 116 grains) of chloral. The operation was commenced immediately, but at 6.20 fifty centigrammes more of chloral was injected. At 6.30 the operation terminated. Attempts were now made to awake the patient by applying, over the course of the pneumogastriacs, the rheophores of a strong electric machine. This failed to arouse him. Towards 8 P.M. sensibility commenced to return. At 8.30 he moved slightly when pinched. At nine he answered questions, but he was not fairly awake till 5 A.M. He made a good recovery.

[As the patient was forty minutes in being anæsthetised, and more chloral had to be injected during the operation, and as the symptoms were such as to cause electricity to be used, it is probable that ether or chloroform by inhalation would have answered at least as well. The case, however, is one of great interest, as showing how effective chloral is as an anæsthetic when thus used. Those who have sufficient confidence in the safety of intravenous injection, will doubtless be induced to repeat the experiment in cases where the operation was likely to produce severe pain for several hours.—*Rep.*]

J. T. CLOVER.

MARCACCI ON A CASE OF RECURRENT CANCER OF THE PENIS.—In a case described by Professor Marcacci in *Il Movimento Medico-Chirurg.*, for September 20, a man named Ubaldo Brocarini had had his penis amputated for epithelial cancer. Twenty-five days afterwards, the disease had attacked the whole of the corpora cavernosa as far as their attachments to the rami of the pubic bone. There were two enlarged glands in each inguinal region. As the patient insisted on an operation being performed, Dr. Marcacci made a circular incision just above the line of the former amputation through the skin and connective tissue, down to the fibrous investment of the penis. From this incision another was made perpendicularly as far as the symphysis pubis; and a third was carried along the inferior surface of the penis (which was only about four-fifths of an inch long) though the raphe of the scrotum, and nearly an inch along the perineum, so as to expose the bulb of the urethra. The scrotum was thus divided along the middle line without exposing the testicles. Dr. Marcacci carefully dissected the skin from the stump of the penis and from the two parts into which the scrotum had been divided, so as to expose the urethra and the crura of the corpora

cavernosa. Believing that the urethra would become retracted into the perineal fascia if cut at the same level as the corpora cavernosa, Dr. Marcacci divided the canal transversely at a point where it was healthy near the bulb, and, having introduced a large gum-elastic catheter, dissected it out as far as the bifurcation of the corpora cavernosa. The catheter and urethra being held aside by an assistant, the operator drew down the penis so as to render the suspensory ligament tense, and cut it through with a stroke of the knife, which was then carried between the penis and the os pubis to the subpubic ligament. On proceeding to dissect the crura from their attachments to the ischio-pubic rami, they were found to be healthy, and were cut through without further dissection. The two dorsal arteries and an artery of the corpora cavernosa required ligature.

The symphysis pubis was covered in by the two flaps of skin from the stump of the penis, and the two sacs into which the scrotum was divided were united separately by five points of interrupted suture. At the bottom of the triangle left between the sacs was the urethra; this was incised anteriorly and posteriorly, and the two lateral flaps were united to the wound by suture.

Four days after the operation the patient had a severe rigor, followed by great increase of temperature. In spite of the administration of quinine, the febrile attacks returned, diarrhoea set in, the skin assumed an intense yellow colour, the wound sloughed, the urine became turbid and fetid, the cerebral functions were disturbed, the gangrene extended to the scrotum, and a small portion of the urethra fell off; vomiting and coma set in, and the patient died nine days after the operation.

At the necropsy, thirty-six hours after death, six small purulent deposits were found at the base of the right lung, and one at the base of the left. The heart was flabby, the spleen was softened, and the liver was in an advanced stage of putrefaction. The scrotum was emphysematous and black, and the walls of the urethra in the neighbourhood of the wound were of a dark colour.

Dr. Marcacci remarks that a similar operation had already been performed by Rizzoli and by Baroni.

TONOLI AND SCARENZIO ON THE TREATMENT OF VARIX BY INJECTION OF HYDRATE OF CHLORAL.—In an article in the *Gazzetta Medica Italiana Provincie Venete*, nos. 19 and 20, 1874, Dr. Tonoli, after quoting Professor Porta's memoir on the radical cure of varix [see LONDON MEDICAL RECORD, March 4, 1874] reports a case under his own observation.

A man, aged forty-nine, had for a long time been the subject of varix of the internal saphena vein, extending from two finger-breadths above the ankle to the groin, where the vein was distended into an ampulla of a dark-blue appearance. At the middle of the leg, two finger-breadths above the knee, and near the middle third of the thigh, there were groups of large tortuous branches, without any trace of clots. Dr. Tonoli made a solution of equal parts of hydrate of chloral and water, and, having made the patient stand erect for five minutes, injected into the veins at each of four separate points, eighty centigrammes (about twelve minims) of this solution: the total quantity used being 3.20 grammes (about fifty minims). After the first injection, there was some escape of blood when the needle was removed. The vessels became obliterated at all the points where

injection had been made. On the fifth day, there was distinct induration in the course of the saphena. It extended to the collateral groups, which on the ninth day were found to be harder. Slight phlebitis occurred at the injected points. The external saphena vein gradually became reduced in size, so as to be scarcely visible; to the finger it felt as a long cord. In two months and a week the cure was complete.

In a case reported in *Commentarii di Medicina e Chirurgia*, fasc. 1, 1874 (*Gazzetta delle Cliniche*, September 22) Dr. Scarenzio had nearly succeeded healing an ulcer by skin-grafting. As perfect healing, however, was retarded apparently by the presence of varicose veins, he injected into these half a grain of chloral dissolved in water. A coagulum was formed; and in a few days the ulcer was completely healed.

GASPARINI ON TREATMENT OF CALLOUS STRICTURE OF THE URETHRA BY GALVANIC CAUTERY.—In the *Liguria Medica* for December 10, 1873 (quoted in *Gazzetta delle Cliniche*, October 13), Dr. Gasparini describes the case of a young man, the subject of old callous stricture of the urethra, who had had total retention of urine for twenty-four hours. The galvanic cautery (Pischel's apparatus) was applied by Dr. Gasparini and Dr. Michelini, and immediately on its removal the patient was able to pass urine. At the end of three days the urine escaped without trouble, and the urethra remained pervious at the end of three weeks.

A. HENRY, M.D.

RECENT PAPERS.

On the Operation for the Closure of Fissures in the Soft and Hard Palates. By John Wilkins, F.R.C.S. (*Australian Medical Journal*, August, 1874.)
On Operations for the Radical Cure of Hernia. By C. Steele, F.R.C.S. (*British Medical Journal*, November 7.)
On Exstrophy of the Bladder in the Female. By Dr. A. Henggott. (*Revue Médicale de l'Est*, October 15.)

OBSTETRICS AND GYNÆCOLOGY.

STADFELDT ON TRISMUS NEONATORUM.—Professor Stadfeldt of Copenhagen, gives (*Archives de Tocologie*, July, 1874) the statistics of the cases of trismus of new-born infants that have occurred in the Lying-in Hospital in Copenhagen during twenty years (1853–1872).

Since his appointment to the direction of the hospital (1865), the disease has not been seen within its walls, and only exceptionally in the affiliated houses (*maisons affiliées*). Whilst he was only assistant-physician the cases were numerous, but in the early part of this century the ravages amongst new-born children in the hospital were fearful. These statistics are carefully analysed, with the hope of explaining the causes of this fatal malady in times past from a hygienic point of view. The pathology of the disease is not considered. There were 93 cases out of 20,806 infants born alive, which gives a mortality of 1 in 224. Of these, 51 were boys and 42 girls; 50 of the mothers were multiparæ, and 43 primiparæ. The proportion of multiparæ to primiparæ admitted into the hospital was as 1·4 to 1. Neither the sex of child nor the duration and difficulty of the labour seem to have any particular effect in the production of the disease. Death took place on the fourth day in 1 case, on the fifth in 3, on the sixth

in 13, on the seventh in 29, on the eighth in 25, on the ninth in 9, on the tenth in 7, and on the twelfth in 1. More than half the cases died on the seventh and eighth days. Of the 20,806 children born in connection with the hospital, there were 10,040 born in the hospital, of whom 11 had trismus, or 1 to 913; and 10,766 outside the hospital, in the *maisons affiliées*, of whom 82 had tetanus, or 1 in 131.

As soon as a woman in labour presents herself at the hospital, she is examined. If it be likely to be a natural labour, she is sent to a *maison affiliée* to be confined; on the other hand, if any difficulty be anticipated, she is admitted into the hospital.

These *maisons affiliées* are situated in various parts of the town; in them the parturient women are boarded out amongst particular families. [It will be observed that the danger of trismus arising is seven times greater amongst the externes than the internes.] This is believed by Dr. Stadfeldt to arise from certain conditions connected with the *maisons affiliées* as hitherto conducted.

It has always been maintained that trismus neonatorum showed itself during epidemics of puerperal fever. There are tables given showing the reverse to be the case; for instance, the total mortality *per mille* from trismus during the twenty years was four only, whereas from puerperal fever it amounted to thirty-five *per mille*. Again, during particular years where there were epidemics of puerperal fever, in one year for instance, the mortality was sixty-four *per mille* from fever, and one *per mille* from trismus. In the year 1854 there was an epidemic of trismus, the mortality being eleven *per mille*, from puerperal fever only seventeen *per mille*. Besides, the hygienic conditions in the *maisons affiliées* are much more favourable to lying-in women than in the hospital, as statistics have conclusively proved. Dr. Stadfeldt does not consider that trismus in any way depends upon conditions unfavourable to the puerperal state.

Most of the cases of trismus occur in the hot months, especially August and September. One-fourth of the whole number occurred in those particular months. The *maisons affiliées* afford excellent opportunities of investigating the hygienic conditions that conduce to this disorder. Of the eighty-two cases of tetanus, in the thirty-four *maisons affiliées*, in five only of the families was the appearance of trismus so frequent as to permit a supposition that there was a disposition proper to this disease. During the years 1853–63, in one of these places it showed itself eighteen times; in four others five times in each; making in all thirty-eight out of the sixty-six cases that occurred in those years. The other twenty-eight instances happened not more than once or twice in separate houses among the remaining twenty-nine. It was found that each of the families, in which there was this excessive mortality, had two beds for the reception of patients, and these were suppressed in 1864. Since then, there have been only sixteen cases in the *maisons affiliées*. The houses with two beds received during the year from 50 to 100 per cent. more cases than did the others, with one or two exceptions, where there were also two beds, but no deaths. It was eventually found necessary to cease sending cases to the house in which eighteen instances were observed, as no amount of quarantine or intervals of rest appeared to have influence in arresting the scourge. The writer concludes that houses with two beds dispose more to trismus than those with one bed, through their more frequent occupation.

That the disease is endemic in its restricted sense is partially disproved by the fact that, in the house where there were eighteen deaths, the proprietress changed her residence three times without stopping the plague. In another instance the affection followed the occupants. The other three families had lived in the same houses for eleven years.

The birth-place, of itself, exerts not the slightest influence on the etiology of trismus.

In the four above mentioned *maisons affiliées*, the midwives slept in the house and directed the lying-in state just as in any ordinary case; previously to 1861 these affiliated places were in the houses of the midwives. It was then thought that perhaps the personal superintendence or malpractice of these women had something to do in producing the disease. In one instance, a Madame H. (*Monatsschrift für Geburtskunde*, vol. xxxi. 1868, vol. xxxiii. 1869) lost no fewer than fifty infants in four years, and was in consequence compelled to give up practising as a midwife. Bathing the infants in too warm water was, in her case, considered the cause of the disease. That this was not the case in these five houses, Dr. Stadfeldt is convinced, as the babes were never bathed except when they were born asphyxiated. As a rule, malpractice is not the cause of trismus, for Mdle. W., who had the 18 cases, lost 15 out of 189 births during the first five years, whereas from 1858 to 1863 she lost only 3. It should be viewed rather as an infectious if not a contagious disorder; this would help to explain Mdle. W.'s mortality, and also assist in comprehending the following unique case.

The most skilled and the best midwife of the institution had, during the months of September and October, 1862, four cases in her practice. One occurred in her own house, the others in two separate *maisons affiliées*. Neither before nor since has she had a single instance; although she has assisted in the hospital, and latterly has practised amongst the best families under the directions of the ablest medical men. In this woman, it could be neither malpractice nor neglect of proper hygienic measures; the writer consequently believes that very probably there exists a specific contagium for trismus.

It was much to be regretted that information could not be obtained of the cases of trismus that occurred simultaneously in the private practice of the midwives.

In conclusion, the author remarks on the great advantage of having these *maisons affiliées* attached to a lying-in hospital, as by this means the admission of patients can be regulated according to circumstances, and at any moment the hospital can be closed without any difficulty, while the women having letters of admission are duly provided for.

They originated through having to provide places of confinement for women during the erection of the present hospital. It makes teaching a little more difficult, but the disadvantages bear no comparison with the great advantages. They act as safety-valves for a lying-in institution, which could only otherwise be obtained by a large increase in the number of beds, which, even if it were possible, would not be desirable in a hospital of this kind. On more than one occasion during the last few years, puerperal fever has been wiped out by the aid of these affiliated houses. In the sad years of 1860-64 it was powerless, as the fever got into the 'houses.' There is, indeed, a great danger that the midwives who attend these 'houses' may spread puerperal

fever amongst their private patients in the town; but, through prohibiting repeated vaginal examinations by the midwives, this plague has been arrested, both in the 'houses' and in the town during epidemics of fever. The *maisons affiliées* are placed under surveillance; no more than one bed is permitted in a family, and two or three weeks are allowed to intervene between the cases, the bed being in the meantime renewed. Whenever a lying-in woman is seriously attacked, she should be immediately transferred to another hospital, as from sad experience Dr. Stadfeldt is firmly convinced that the demise and corpse of a puerperal woman is most dangerous in any lying-in institution or 'house.'

In conclusion, any midwife who has attended a case of puerperal fever should be immediately prohibited from attending any more cases for a time.

TWO CASES OF REDUCTION OF CHRONIC INVERSION OF THE UTERUS.—Dr. James P. White, of Buffalo, New York, publishes two cases, being the tenth and eleventh of his series. Since 1856, the date of the first case of reduction, Dr. White has had nine similar cases, exclusive of the two now reported, which he has published from time to time in the *Buffalo Medical Journal*, April, 1856, and in the *American Journal of the Medical Sciences* for July, 1858, and April, 1872. In the latter paper he gave a sketch of his repositior. These two additional cases go far to prove the author's assertion, made when publishing his cases in 1872, 'that every case was capable of being reduced without any reserve.'

The following is Dr. White's method of operating. The woman is placed on her back and drawn to the edge of the bed, the feet resting on the laps of two assistants, he then kneels down in front of the patient, between her legs. The uterus is seized with the right hand, and compressed for some time, so as to render it more pliable; gentle pressure is now made on the fundus by means of the uterine repositior in the line of the axis of the pelvis. The left hand is kept free for manipulating the upper end of the uterus, either *per rectum* or through the abdominal walls. This repositior consists of a stem of wood or India-rubber about ten inches long, slightly curved, with one end cupped and covered with a soft rubber, so as to fit the fundus of the uterus. The other extremity has a spring attached to it, which is fixed against the operator's breast; a pressure of about eight or ten pounds is exerted. The uterus is squeezed by the hand. When the fundus is so far reduced as to be embraced by the cervix, the repositior is withdrawn and a large rectal bougie used.

Case 1. This was a woman, aged forty-six. She was attended by a midwife twenty-two years previously, who in removing the placenta, inverted the uterus. The patient being anæsthetised, a small ovoid body, about the size of a hen's egg, was found hanging by a narrow pedicle in the vagina, continuous with its upper and smaller extremity. By some of the medical men present it was doubted to be the uterus.

In this case it took one hour and fourteen minutes to reduce the fundus above the os. The assistant completed the operation in sixteen minutes. The whole operation occupied one hour and a half. The patient made a good recovery.

Case 2. The uterus had been inverted for over six years, from extraction of the placenta at the patient's second labour by an irregular practitioner.

The patient was exceedingly weak and anæmic from continued loss of blood. She was anæsthetised. A complete *cul-de-sac* could be found encircling the entire constricted portion of the tumour. The left hand was used in this instance to compress the uterus.

At the end of thirty minutes no impression was made 'on the tumour; the hæmorrhage was slight, and the constriction the same. At the end of the second thirty minutes the tumour was felt softer, and there was little bleeding.

During the next thirty minutes the pulse became quickened, and the tumour more soft and compressible. A large-sized gum-elastic rectal bougie was substituted for the repositor or 'egg-beater,' as it is termed. At the end of two hours and ten minutes from the commencement of the operation, the constriction suddenly relaxed, and the organ assumed its normal position. The patient made a good recovery, and when last heard of, was 'well in every respect.'

The question of the ability to reduce a chronic inversion of the uterus has engaged the attention of most gynæcologists, and Leishman believes that pressure with incision will succeed in any case where there are no chronic adhesions. Dr. Barnes has invented a new operation in order to avoid amputating the uterus, or of affecting 'forcible reduction' as advocated by Dr. White. The author considers Dr. Barnes' describing his operation as a 'forcible reduction' absurd, and believes that there is no conceivable method less forcible than that of making gentle elastic pressure upon the fundus, producing thereby equable moderate traction by the vagina, which in complete inversion is attracted within the os. The vagina dilates the os with less tendency to laceration than a tent. All Dr. White's cases, eleven in number, have been reduced at a single sitting without any known laceration of tissue. His most difficult cases have not been the longest in reduction, but in two where amputation had been begun and failed through some fault of the operator. Adhesions were believed to have occurred in these cases.

The writer considers any manipulation whilst the uterus is undergoing involution to be more dangerous than at a subsequent period. Dr. Evory Kennedy's dictum that reduction was possible and safe at the early stages, and impossible after a lapse of ten or fifteen years, through alteration of the tissues, was entirely disproved by his cases of reduction at the end of seven, fifteen, and twenty-two years.

MAYER ON A SUCCESSFUL CASE OF CÆSAREAN SECTION.—Dr. T. Mayer (*Archives de Tocologie*, September, 1874), relates a case in which Cæsarean section was performed on a married woman, aged thirty, about three feet high, the subject of acute antero-lateral curvature of the lower third of the spine. She would not submit to the induction of premature labour. An incision six and three quarter inches long was made on the mesial line, beginning about four-fifths of an inch below the navel, and extending to within half an inch of the pubes. A strong effort of inspiration at the moment of opening the abdominal cavity nearly protruded the whole of the intestines, which were with difficulty restrained. An incision was next made in the median line of the uterus, care being taken not to injure the bladder. The membranes had been ruptured previously to beginning the operation, and all the amniotic fluid drained off. Not a drop of blood or of liquor amnii escaped into the peri-

toneum. The sides of the wounds were well sponged with cold water to check bleeding. The membranes were then divided by means of the stylet. The placenta was removed with slight loss of blood, the hæmorrhage being checked by cold applications, and the uterus made to contract firmly. A seton was introduced through the vagina and the uterine wound, being fastened externally above the pubes. The sutures were passed through the abdominal walls only. On the sixteenth day the drainage-tube was removed. The woman recovered without any symptoms of metritis or peritonitis, or hæmorrhage. She had severe diarrhœa, and with it the left leg became affected with phlegmasia dolens.

The village and the house in which she was operated on were of the most unhealthy description. The room, however, was of fair size.

WHITTAKER ON GALVANISM IN AMENORRHOEA. Dr. James Whittaker (*Ohio Clinic*, July 25), relates a case of obstinate amenorrhœa occurring in an otherwise healthy female aged twenty-two years, in which, after all other means of relief had failed, the interrupted current from a battery of twelve elements induced the menstrual discharge. In applying the current, the positive electrode was placed over the fundus uteri externally, and the negative, a fine gold-pointed wire, was introduced within the cavity of the uterus.

W. C. GRIGG, M.D.

MISCELLANY.

DEATH OF DR. EDWARD SMITH.—We regret to have to announce the death of Dr. Edward Smith, F.R.S., assistant-medical officer to the Local Government Board. Dr. Smith held the degrees of M.D. (1843), and LL.B. and B.A. (1848) of the University of London. He was also a Fellow of the Royal Colleges of Physicians and of Surgeons. He was a man of rare mental powers combined with indefatigable industry. The mere list of his published works would occupy a considerable space, whilst it would show at the same time the varied character and the depth of his researches in various branches of medical science. In 1849 he published an *Account of a Journey through North East Texas*. He was also the author of works on *Health and Disease as influenced by Daily and other Changes in the Human System*, and on *Consumption*, and of numerous papers in medical and scientific journals, on Pulsation and Respiration, Phthisis, Prison Diet, the Action of Alcohol, Food, etc. In 1862 and 1863 he reported to the Privy Council on the dietary of Lancashire operatives, and other low-fed populations, and contributed a volume on food to the International Science Series. His most recent works are a *Manual for Medical Officers of Health* and a *Handbook for Inspectors of Nuisances*. Dr. Smith was formerly, for some years, assistant-physician to the hospital for consumption at Brompton; he was a corresponding member of the Natural History Society of Montreal, and of the Académie des Sciences et Lettres de Montpellier.

MEDIÆVAL BARBARISM IN SPAIN.—A correspondent of the *British Medical Journal*, writing from Madrid, gives an account of a few of his patients, and the course of treatment to which they had been subjected prior to having consulted him. He says that one of the prescribers of the nastinesses described is an ex-Court physician, and that another fills a professorial chair. Case 1. D. F. L., aged thirty-five, having chronic articular rheumatism, was ordered nine days' baths of archena; after that, to observe the 'Cuarentena' (or forty days); to take no medicine whatever. Being worse than ever at the end of that period, he was ordered friction all over the body with a

slush composed of equal parts of smashed earth-worms, rancid oil, and putrid mule's dung, to be applied assiduously for the mysterious nine days, night and morning. Case 2. Senora B. de L., a 'noble lady,' aged thirty-two, recently confined, had a small abscess of the left breast. She was attended by an ex-Court physician, who, when he had exhausted all his remedial skill, ordered a poultice three times a day of white pigeon's dung, saying that if that did not cure her nothing else would. Case 3. Dona Francena A., aged twenty-three, had been treated for dyspepsia with amenorrhœa for ten months. Her last prescription was 'nine days' poultices of fresh human excrement. She could only endure this disgusting barbarism two days. Case 4. Eulogia G., a servant-girl, aged nineteen, had chronic diarrhœa, and was ordered to take a tumblerful of child's urine every morning, fasting, for nine days. She could take such a dose only three days. Case 5. Pablo Insari, aged thirty, plasterer, had had six months' doctoring for heart-disease following rheumatism. The last prescription was a newly killed pigeon split open down the middle, and applied over the left chest for 'nine days,' and to go to work. Case 6. Senor Don M. H., mine-proprietor, aged thirty-nine, had cardiac dropsy. His last prescription was, a sheep to be killed daily, and the skin, with the wool on, to be wrapped round the body tightly. Case 7 is perhaps the most ridiculous of all. Miss S. A., an American lady, sent for me, and said, 'Doctor, I've got the gripes for the last two or three days, and yesterday, feeling no better, according to a notion in my country (Pittsburg), I took eight or ten black pepper-corns, wrapped up in a piece of your *London Times* (they must be swallowed in printed paper). I guess that they have stuck somewhere, and I feel awful bad, and I want you to give me something right off to get me rid of them pepper-corns and your English paper. Had I only got the *New York Herald* they would have gone slick down.' A small dose of castor-oil shortly set her right. By way of confirmatory evidence, our correspondent gives the following literal translation of a paragraph in the *Correspondencia* journal: 'In the slaughter-house of Madrid, which is under Government supervision, there is being committed a repugnant abuse, which, for the sake of health and public decency, and at the request of many persons, we denounce to the Senor Alcalde, chief civil magistrate of this city. In the above-named establishment, they consent or permit the sick, with arms and legs at times full of ulcers and wounds, to lie inside the carcasses of animals while hardly yet dead. Apart from the horror and disgust which this produces in the persons that witness these things, it might produce disastrous effects on the public health, and we doubt not that such scandalous acts will have an efficacious and prompt correction. We shall be on the lookout about this matter.'

DR. SYMPHORIEN CHAMPIER, THE MASTER OF MICHAEL SERVETUS.—The Rev. H. Tollin, of Schulzen-dorf near Lindow, communicates an interesting article to Virchow's *Archiv*, Band lxi. Heft 3, on Michael Servetus, executed at Geneva in 1553; and remarks that this celebrated Spaniard, who represented the principle of free and independent investigation in the later period of the Middle Ages, was accustomed to own scarcely any man as his master, and was wont to represent himself as self-taught (*auto-didakt*) in every branch of knowledge. We know, however, that Anghiera taught him his 'humanities'; Alciat, jurisprudence; Paulus Burgensis, theology; Capito, cabalistic lore; Sebastian, Münster, geography; Peter Apianus, mathematics; whilst Jacobus Sylvius, Winther of Andernach, and Fernel, were his teachers in medicine. However, save and excepting Our Saviour, whom he repeatedly acknowledged as his special teacher, Michael Servetus only publicly and expressly recognised one master amongst all who lived in his times, and that one was the surgeon Symphorien Champier, of Lyons. 'Ut pro Symphoriano Campegio, cui ut discipulus multa debeo, aliquid scriberem,' says Servetus, in the dedication of his *Brevissima Apologia*, etc. It was Champier (variously

known as Campegius, Campèse, Piercham, La Faverge, and Théophraste du Mas) who gave to the fugitive Spaniard a new home in Lyons, converted the miserable corrector of proofs into a celebrated physician, made the wild enthusiast a sensible and learned man, inspired the declared enemy of all philosophy with such glowing love of Plato in the guise of Neoplatonism, as marks a new era in the mind of Servetus and changed the whole course of his thoughts. Thus, indirectly, we owe his [partial] discovery of the circulation of the blood to Champier; for Servetus, but for this and for him, had never been a doctor; and, in one sense, Champier may be said to have brought him to the scaffold, for, had Servetus never adopted Neoplatonism, the *corpus delicti*, his *Restitutio Christianismi*, would not have appeared. We know but little of Champier, except that he was born at Symphorien le Chateau, near Lyons, in 1472, and died at Lyons in 1539. After studying surgery at Paris and Montpellier, he practised in Lyons, and after 1509 followed Duke Antony of Lorraine in all his campaigns as surgeon-general. He was knighted at Marignano, on the field of battle, and in the same year (1515) was made one of the Faculty of Medicine of Pavia. He married a relative of the celebrated Bayard, and settled once more at Lyons, where he was held in high esteem till driven away by famine-riots. Returning in 1533, he became the founder of the celebrated Collège de la Trinité, and raised the Lyons medical faculty to high position by the force of his genius, though it was not formally constituted till the year 1576. [See Perneti, part ii. *Biographie Universelle*, art. Champier, and elsewhere.] Mr. Tollin considers him as representing the civilising function of the state, or secular power, as opposed to ecclesiastical authority, especially that of the titular archbishop. Champier was a friend of Bayard's, and wrote his life. His writings appear to have been very numerous; every year, at least, a new book appeared, though it seems, like Dumas, that he often put his name to the works of others. Whatever the value or originality of his writings may have been, for on this point opinions differ, it is almost certain that he far excelled his contemporaries in the practice of his art; and one of the best of them, the celebrated Jacobus Sylvius, affirmed that in his scientific journeys he had found only two men worthy to be called doctors of medicine. One of them was Hieronymus Montuus, Servetus' friend; the other was Symphorien Champier, the teacher of Servetus.

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The London Medical Record.

WEDNESDAY, NOVEMBER 25, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

CLINICAL LECTURE ON FIBROUS ANKYLOSIS, CHRONIC SYNOVITIS, ETC. BY LEWIS A. SAYRE, M.D., OF NEW YORK.

GENTLEMEN: The first case that I bring before you to-day is this girl, who has been suffering for some time from fibrous ankylosis at the hip-joint.

This form of ankylosis in many cases very closely assimilates bony ankylosis. It is important, therefore, that you should be able to distinguish one from the other with great certainty, for the management of the two conditions is conducted upon entirely different plans.

In those cases which most closely assimilate bony ankylosis—for it is in such that differential diagnosis is most difficult—if movements be made at the joint, and any motion whatever be secured during the manipulation necessary to a thorough examination of the case, it will be followed by more or less of pain within twenty-four hours. This is a distinguishing feature of cases of fibrous ankylosis; for, when bony ankylosis is present, no movements at the joints can be made, consequently pain will not be produced at the point of ankylosis. This rule you will find to be reliable. The subsequent occurrence of pain in and about the joint, even if there be no apparent motion, will justify you in resorting to measures calculated to give to it gradual restoration of motion.

In the case of this little girl, it was exceedingly difficult to determine whether any motion whatever was remaining at the hip-joint, so firmly flexed and adducted was her limb. But the day following the manipulation considerable pain was present, and other evidences of inflammatory action were quite well developed. The limb was kept at perfect rest by placing the child in bed. By the rest in bed, and continued application of cold to the inflamed parts by means of icebags, an extension in the line of deformity gradually changed towards the normal. All inflammatory action was subdued within a few days, and then she was placed upon this instrument, which had been specially devised to meet the indications in her case. The instrument consists of a pelvic belt, with perineal bands: a long bar with a foot-piece and adjustment for extension; a knee-cap; and a movable joint opposite the hip for flexion, extension, and abduction. At the movable joint, arrangement is made so that, by means of screws, abduction and rotation of the limb outwards can be effected at the same time. It is, in short, a modification of Taylor's long splint, the modification consisting in the use of screws for obtaining abduction and rotation. It has now been one month since the instrument was applied, and the change which has been produced during that time is very marked. The limb has been abducted to such an extent that

it is now nearly parallel with the opposite limb. This can be ascertained only by placing the pelvis in a fixed position. Rotation has been almost perfectly restored, and flexion and extension have been restored to considerable extent. Abduction and adduction are quite free, and the limb is upon the highway to complete recovery.

The case well illustrates what extraordinary results can be obtained in the way of overcoming muscular rigidity by the application of a constant unremitting force. Under circumstances favouring the application of constant unremitting elastic force, equally as favourable results can be obtained by paralyzing muscular power, thus overcoming deformities produced by it.

The second case is one of chronic synovitis. This patient, as you see, is a man of medium size, exceedingly muscular, and forty years of age.

Some seven or eight years ago, while wrestling, his foot caught against the edge of a board in the floor, which was slightly elevated above the others, and the quadriceps muscle being placed in a condition of powerful tension, luxated the patella upon the right knee inwards, and he fell. While he was attempting to raise himself, the muscle restored the patella to its proper position. For a few days he was unable to walk, but in a short time recovery, as was supposed, was complete.

About two years after the occurrence of this accident, chronic inflammatory action was set up on the opposite knee, and soon affected both knees; they gradually increased in size, and now, as you see, they are immense. One measures eighteen, and the other seventeen and a-half, inches in circumference, and the calves of the legs are very much diminished in size.

For the last two years this condition has remained about stationary. The effusion is now so abundant that the patella of each knee is lifted from its articulation, and, as pressure is made upon it, it can be made to strike the bones below with an audible click. By transmitted light a lake of fluid can be seen below the ligamentum patellæ, with a large collection of semi-gelatinous material at its upper surface, presenting a very beautiful pathological appearance. These knees have received an almost endless variety of external applications, and his general system has received a great amount of medication, but all have failed to produce any change, and we now find them as they have remained for a number of years.

The effusion in this case has become so great as to preclude all possibility of its removal by absorption, simply because the excessive tension that has been made upon the absorbents has paralysed their action in such a manner that absorption cannot take place.

The condition is analogous to that occasionally seen in ascites, when the pressure is so great from accumulated fluid that the absorbents will not respond to the influence of internal remedies. In that case, the removal of only a small portion of the fluid will in many cases reduce the tension sufficient to permit the subsequent removal of the remainder by the renewed action of the absorbents. This case, however, has been of so long standing that it is not probable that the removal of a portion of the fluid would be of any benefit, even though followed by the most constant and powerful compression.

In most cases, particularly in the subacute and earlier chronic stages, decided benefit can be obtained by pressure applied to the joints. This

can be conveniently and effectually done by means of compressed sponge. Cover the joint which is the seat of the synovitis with compressed sponge, and retain it in position by means of a roller bandage. The sponge is then wet with warm water, which causes it to gradually expand and thus produce an equal amount of pressure over all the parts covered; and it can be kept up as long as may be desirable. The sponge can be applied once or twice a day, according to the necessities in the case. Changing it every twenty-four hours is usually sufficient.

The question now arises, What is the best thing that can be done for the relief of the present condition of this case?

A free incision will permit the fluid to escape, but the risk of exciting an uncontrollable inflammatory action would hardly warrant such a procedure.

What I propose to do in this case is to remove the fluid by means of the aspirator. This, also, is not altogether a safe operation, for inflammatory action may follow its performance; but, under the circumstances, it is the best operation that can be resorted to. In such a case as this, a certain amount of risk must be taken, no matter what operative interference may be adopted.

In all probability, simple aspiration will fail to give any permanent relief, for the reason that the case has been of so long duration. It is also altogether probable that the synovial membrane has become changed in its anatomical structure to such an extent, that permanent benefit will only follow the adoption of some more active measure.

There is a chance, however, that the simple operation of aspiration, followed by elastic pressure, such as obtained by the use of compressed sponge and a roller bandage, may accomplish a cure.

If simple aspiration do not succeed, the fluid will then be removed by means of the ordinary trocar; and after its removal, the cavity will be injected with Lugol's solution of iodine. This principle of treatment is precisely the same as that which governs us in the treatment of the tunica vaginalis in cases of hydrocele; namely, to excite a new action in the old and changed membrane, by means of an irritating agent; and for this purpose the solution of iodine indicated is much the safest agent to be employed.

In either case the patient will be placed in bed immediately after the operation, the knees will be firmly bandaged, locked in a perfectly immovable apparatus, elevated above the level of the body, and perfect rest maintained. In addition, icebags will be constantly employed if necessary. The object is to retain the inflammatory action just within the point of danger. In this manner we may reasonably expect to bring about complete recovery.

The next case is one of cancer of the lower lip. These growths, seen not infrequently upon the lower lip, are usually regarded as cancerous in nature. Some of them are not. Some of them bear so close a resemblance to the ordinary epithelioma of the lip, that they cannot be distinguished from each other by the naked eye. They are usually the result of constant and long-continued irritation.

Fortunately, there is one plan of treatment best adapted to them all. Remove them with the knife, and that makes an end of them.

There are some steps in the proceeding which are necessary to be observed if you would make a nice operation, and one which will prove satisfactory to

your patient. The ordinary operation is to remove the diseased mass, by making a V-shaped incision, large enough to embrace the whole of it.

Serious hæmorrhage can be avoided during the operation by having an assistant to make pressure upon the facial arteries as they pass over the ramus of the lower jaw. The wound can be closed by means of sutures, or pins with the figure-of-8 suture. I commonly employ the pins. These are to be passed through the lips of the wound, and then its edges are brought together in such a manner as to avoid leaving any notch in the free margin of the lip. The attachments of the cheek may be loosened with the knife if necessary, in order to give more opportunity for perfect adjustment. Two pins are usually sufficient. After the pins have been adjusted and the sutures twisted about them, do not neglect to place a piece of adhesive plaster beneath the point of the pins to prevent irritation and excoriation. Next, long narrow strips of adhesive plaster are to be adjusted in a manner to give support to the pins in holding the lips of the wound in coaptation. These strips, passing above and below each pin, should be carried far back upon the sides of the face and neck. Carefully adjust the edges of the wound a second time, as the plaster is carried over them. The pins are to be removed within forty-eight hours at most after the operation. To do this without disturbing the wound, seize the pin at the head with a pair of pincers, and carefully turn it round once or twice before making the least traction. With this precaution the pins can be withdrawn without disturbing the threads or plasters, which together with the crust, are left remaining, and should not be removed for some time. Unless the pins are removed before ulceration and suppuration have been established about them, scars will be left at the points of insertion and exit; but with this precaution scar can be avoided.

Here, gentlemen, is a case which belongs to the every-day practice in surgery—one of ingrowing toe-nail. It is important, therefore, that you should understand how to manage successfully such little cases. Almost any one can cut off a limb, but it is not every professed surgeon even who successfully manages these painful cases of ingrowing toe-nail. It is quite fashionable, especially in cities, to recommend these people to go to some *specialist*, who 'knows all about corns, toe-nails, etc. ;' and one of these cases is scarcely ever met here but what has been more or less treated by that class of men. Narrow-soled shoes and boots are the great prolific sources of this difficulty. A great many people imagine—and we are sorry to be obliged to say that the greater proportion of this class is made up of ladies—that a narrow foot and high instep are elements of beauty. The result, however, of these efforts to distort the foot is, the toe-nails cut their way into the tissues, and the tissues become hypertrophied. The appearance very commonly presented is a large mass of fungous granulations rising up from the side of the nail, as you can see very well illustrated in this case.

The toe cannot be cured until this redundancy of flesh is gotten rid of. Sometimes it becomes necessary to employ the knife in the removal of this superfluous growth. Nitric acid is a very good application, and nitrate of silver is another.

Immense relief can be afforded by applying a few threads of cotton beneath the cutting edge of the nail, in such a manner as to protect the excessively

tender tissues from the irritation produced by being crowded into contact with it. When the cotton is properly applied, pressure upon the ball of the toe will give no pain. The proper instrument with which to apply it is a narrow thin knife-blade without cutting edge. With this instrument draw a few threads of cotton down between the nail and the mass of granulations, and so on until they are carried beneath the cutting edge of the nail. This operation will give some pain during its performance, but the relief which will be afforded by it will be most marked. After the application of the cotton, pencil the fungous granulations over freely with nitrate of silver, or with whatever may be used for the purpose of destroying them. Repeat the application as often as the destroyed tissues separate, until the exuberant growth is all destroyed.

The next case I present to you, gentlemen, is one of considerable interest. This man first suffered from a fracture of the forearm. Phlegmonous erysipelas attacked the limb a short time after the accident; and you will here notice the many openings which have been made for the free escape of pus, numbering, as the house-surgeon says, thirteen. The wrist-joint has also become involved in the inflammatory process. The case was once set down for amputation, but I resolved to make an effort to save the limb.

The difficulty involving the wrist-joint was the chief obstacle to be overcome. The thing desired was to place the joint perfectly at rest, and at the same time remove all pressure from the articular surfaces. How was this to be done? Take a piece of sole-leather, long enough to reach from the digital extremity of the palm of the hand to near the flexure of the elbow, and wide enough to half or two-thirds surround the arm. Dip it in cold water, and make it thoroughly flexible. Cover it with a piece of adhesive plaster, plaster side out, long enough to go completely around it lengthwise, and lock. Now, having covered each opening with a piece of oakum, apply the leather-lined plaster to the palm of the hand, mould it, and secure it with a roller-bandage as far as the wrist. Having arrived at that point, grasp the hand already covered, while an assistant grasps the arm near the elbow; then making extension and counter-extension, until the patient tells you that all pain is relieved, bring the remainder of the leather-lined plaster against the forearm and secure it with a continuation of the bandage. In this manner all pressure is removed from the articular surfaces, pain is relieved, and an apparatus is afforded which retains everything at perfect rest. It is almost impossible to devise any means for meeting the indications in this case which is simpler than this. The leather is much better adapted to such uses than a board, for the reason that it can be more perfectly moulded to all the inequalities of the limb. The plaster lining holds it securely in position, in such a manner as to prevent slipping. Since the application of this splint the œdematous condition of the limb has passed away, and the question of amputation is no longer present for consideration.

PREVENTION AND TREATMENT OF PUERPERAL DISEASES. BY DR. GOODELL, OF PHILADELPHIA.

[The following paper, extracted from the American Supplement to the *Obstetrical Journal of Great Britain and Ireland*, seems worthy of being

read by the general profession, as embodying views and actions exceedingly novel and successful on a most important practical subject.]

The Preston Retreat is a small lying-in hospital for reputable married women. The yearly average has thus far been about one hundred labours, but it is now rapidly increasing. It contains four wards, each with a capacity of 9,153 cubic feet, and each furnished with five beds, of which not more than four are generally occupied at one time. The ventilation in winter is obtained by the escape of the cold and foul air through an old-fashioned fireplace, in which a jet of gas is kept constantly burning, and by the free admission of pure air, which has been heated in the basement by passing around steam-chests, with large radiating surfaces. In summer, the admission of pure air depends exclusively upon open doors and windows, and the ventilation is, consequently, less perfect than in winter. In the spring and autumn months there are many days in which the temperature is too warm for the free admission of heated air, and yet too cold for open windows. These are, therefore, the two seasons of the year which I dread the most, and in which I avoid, as much as possible, crowding the wards.

The wards are used invariably in rotation. By close management, and by crowding walking patients together, one of these wards in its turn stands idle for two or three weeks. During this time the doors and windows are kept open. Before it is again occupied by patients, the walls, floor, woodwork, and furniture—all of which are painted—are thoroughly scrubbed with carbolic acid soap, and then mopped over with a solution of half a pint of carbolic acid (Calvert's No. 4), to one pail of water. From this time until the ward is again vacated, no portion of it, not even the floor, unless accidentally soiled, is touched with water.

The nurses wear such clothing only as can be washed. As soon as the inmates of a ward are well enough to take care of themselves or of one another, their nurse is relieved from duty. She now takes a soap bath, puts on an entirely clean suit of clothes, and goes into a ward which has been thoroughly ventilated and cleansed. Before a new batch of patients falls to her care, she has had one week or more of rest. I visit the wards thrice daily, beginning always with the ward last occupied, and with the patient last delivered. Whenever a vaginal examination is needed, it is put off until all the other patients have been seen. The examining finger is then anointed with an ointment containing carbolic acid, and the hands are afterwards washed with carbolic acid soap. *Post mortem* examinations I never perform. Whenever one is needed, an expert is called in, and remunerated for his services.

The beds consist of a tick filled with fresh straw and covered with an army blanket. After the discharge of a patient, her bed is emptied, and the tick, blanket, and bed-clothes are boiled in water to which a little carbolic acid has been added. Each bed is furnished with a feather bolster and pillow, which are exposed, on slats to the air when not in use. Once a year every bolster and pillow-tick in the house is washed, and the feathers baked and 'renovated,' as it is technically termed. They also pass through the same process whenever soiled, or whenever used by a patient whose convalescence has been delayed.

The patients come chiefly from the poorest classes; but many in more comfortable circumstances, with

the hope of getting better care, seek admission on account of some difficulty attending their former labours. On this account, the proportion of difficult labours is much above the average. Those patients who have families often put off coming in until labour has actually begun, and then leave at the earliest possible moment. Notwithstanding this, since patients have the privilege of remaining four weeks after their delivery, the average stay of each one is sixteen days before delivery, and eighteen days after. Every patient, upon admission, takes a warm bath, and at least once a week thereafter before her delivery. If she exhibit signs of feeble health, she is at once put upon the use of quinia, and of the house mixture, consisting of two parts of the muriated tincture of iron, with three of dilute phosphoric acid. The habitual constipation of pregnancy is met by the administration, either in the morning of a teaspoonful of pulvis glycyrrhizæ compositus of the Prussian Pharmacopœia; or, at bedtime, of four Lady Webster's pills (pilulæ stomachicæ). When a more active purge is needed, the compound jalap powder or the compound cathartic pill (U. S. P.) is given. Headache and sleeplessness are treated by warm baths, by full doses of potassic bromide, and by the above-named medicines, when indicated; albuminuria is dealt with in pretty much the same way, but always with iron and phosphoric acid. The regular diet is plain and wholesome, yet more liberal than is usual in charitable institutions. Apart from the frequent use of aperients, a relaxed condition of the bowels is promoted by serving table-syrups at every meal, by fruits—fresh or dried, according to the season—and by all such vegetables as can be eaten raw, viz., lettuce, cress, radishes, leeks, onions, tomatoes, cucumbers, and cabbages. Of these, in this latitude an ample supply is obtainable during nine months of the year.

When a patient falls into labour, she first has her bowels moved by an injection, and then takes a warm bath. The bag of waters is usually ruptured artificially, and the liquor amnii collected in a grocer's scoop. The second stage of labour is never allowed to linger; any delay is met by the use either of the vectis or of the forceps. As soon as possible after the birth and the removal of the child, the placenta is delivered by Credé's method. I may here remark that the still pulsating cord is first cut, then 'stripped' of its blood, and as much as possible of its gelatin, and finally tied, when it has ceased to bleed and has become flaccid. Neither belly-band nor any kind of dressing is afterwards applied, but the cord freely dangles about from the navel. Treated in this manner, it dries up without any bad smell, and falls off like a ripe fruit, without leaving a raw stump. Out of more than five hundred infants treated thus, not one has had a pouting or sore navel requiring treatment, and not one has had an umbilical hernia. I am also well satisfied that, by dispensing with the belly-band, I have had fewer cases of inguinal hernia. Those of my readers who wish a more detailed account of this method of dealing with the cord, can consult the *American Journal of Obstetrics*, vol. iii. p. 327.

Ergot is hardly ever resorted to as an oxytocic; but one teaspoonful of the fluid extract is invariably given as soon as the head presses upon the perinæum. When the labour is over, the perinæum is examined, and, if torn, is at once sewed up with silver sutures. The patient is now washed clean, and a binder and

cylindrical compress applied, the latter in the hollow just below the fundus of the womb. The bedstead on which she has been delivered is next wheeled from the delivery-room to a ward and placed along the side of a bed, to which the woman now hitches herself over. Contrary to the generally held opinion that absolute rest after labour is indispensable, in no single instance has this muscular exertion apparently brought about a flooding. It seems rather to condense still further the uterine globe. Very rarely, indeed, has a flooding happened outside of the delivery-room. However warm the weather, a blanket is thrown over the patient, and a foot-warmer put to her feet. These remain until reaction sets in and she asks to have them removed. A mug of beef-tea made from Liebig's extract is now given, and the child is put to the breast as soon as it will take it. Thereafter, in a natural convalescence, the woman gets tea, boiled eggs, bread and butter, for breakfast; potatoes, and some kind of meat, for dinner; stewed or fresh fruits, tea, bread and butter, for supper. On the morning following the day of her labour, the binder is removed for good, and she slips into a chair while her bed is making. This is repeated once or twice a day until the fourth or fifth day, when she, if so disposed, gets up and dresses herself. No patient quits her bed against her will; yet the force of example is so great that very few care to stay in bed, when they see their companions up and about.

No woman is allowed to suffer from after-pains. Whenever these are complained of, quarter-grain doses of morphia are administered every hour until relief is obtained. In stubborn cases of after-pains I have found nothing act so promptly as the administration of ten grains of quinia every six hours, until the ears ring. For this valuable suggestion, I am indebted to my friend Dr. Fordyce Barker. Bed-pans are not employed, except in cases of illness, or in cases requiring vaginal injections; but each woman has her own chamber-pot, which she uses indifferently, either in the sitting or the knee-elbow posture. Every woman is required to wash her own person at least once a day, and that with carbolic-acid soap and a wad of fine oakum, which is at once thrown away. Only under very exceptional circumstances does the nurse cleanse the patient. Should the lochia become offensive, the woman is made to get out of bed and slip into a chair three or four times a day. This usually corrects the fetor; but if it do not, then, and only then, is a solution of potassic permanganate thrown up into the vagina. Firmly believing the nozzle of a syringe to be the medium of communication of virus from patient to patient, I avoid the use of vaginal injections as much as possible. For a like reason, the temperature thermometer is not habitually used, but only in single cases as an aid to diagnosis.

Whenever the lochia are offensive, or the pulse is over 90, or the thermometer indicates a temperature higher than natural, or pelvic pains are complained of, or, in short, whenever any untoward symptom appears, quinia is given in from six- to ten-grain doses every four hours, until the ears ring. In addition, for abdominal pains large doses of morphia are given, and the whole belly is painted with iodine, and covered with a mush-poultice. The canonical purge on the third day is dispensed with. A patient has usually a movement of the bowels either before or on the day in which she gets up for good. If this does not happen, she takes four Lady Webster's pills at bedtime, which then act on the morning of the

sixth day. As soon after getting up as she feels strong enough, she takes a warm bath.

Thus far I have stated the means adopted at the Preston Retreat for the prevention and the treatment of puerperal diseases. I now propose to give my reasons for such of them as need some explanation.

But few words are needed to explain why the ordinary chamber-pots are used, and why patients are made, once or twice a day after the first, to get out of bed and slip into a chair. The presence of putrescent fluids in the utero-vaginal tract is recognised by all writers as the great cause of the autogenetic variety of puerperal disorders. But the recumbent posture of itself necessarily tends to detain these poisonous discharges in contact with the traumatic lesions of labour. These discharges may also be partly imprisoned in the vagina through the swollen condition of the more external soft parts, or partly corked up in the uterine cavity by the presence in the cervical canal of a putrid clot. In such cases detergent vaginal injections are highly recommended. But clinically they will be found of limited value; for they cannot reach high enough, and do not ordinarily dislodge a large clot even when situated low down. True, intra-uterine injections are not open to one of these objections; but, apart from their being attended at best with some degree of hazard to the patient, the operation is too delicate a one to be intrusted to a nurse. Besides, in hospital practice the nozzle of a syringe—to say nothing of the fingers of a nurse—is, I fear, so often one of the vehicles for the transmission of virus, as to make this means of disinfection of doubtful propriety. In a local outbreak of fever, especially of the diphtheritic form, I should, however, suggest the use, immediately after labour, of vaginal injections containing the nitrate of silver or the persulphate of iron, in quantities large enough to sear over the traumatic lesions of labour. Such injections I have had no occasion to try, but they ought to inhibit active absorption and promote healthy granulation.

While seeking a substitute for the syringe, my attention was directed to the fact that the act of sitting on the ordinary chamber-pot often forced out putrid shreds or fetid clots, which had not been washed away by vaginal injections. This led me to discard, except in cases of positive illness, the use of bed-pans or of any other utensil—such as urinals—which can be used by a woman when lying on her back. Shortly after making this change, I found that, for like reasons, some shrewd and very practical writers of the last and the present centuries urged an early departure from the recumbent posture. Further, a residence of some years in the East had taught me that Oriental women, at least, can with impunity get up and be about a few hours after delivery. Influenced by these facts, I decided, cautiously at first, to introduce into the wards of the Retreat a system of puerperal gymnastics, consisting in no restraint whatever as regards the position in bed, and in the daily release from an irksome confinement. I was much pleased to find that the muscular exertion needed for these movements, so far from inducing hæmorrhage, excited the womb to contraction, and emptied it and the vagina of their putrid contents. I can testify that whenever the lochia are offensive, these upright positions, repeated several times a day, are excellent deodorants, better in fact than any detergent vaginal injections. There is yet another

advantage gained by this plan; it affords, in hospital practice, an excellent opportunity for bundling the bed and bedding out of the ward and giving them a much-needed airing. In a crowded hospital-ward, the hygienic importance of such repeated disinfection can hardly be over-estimated. At the risk of being called an enthusiast, I will go a step further, and hazard the assertion that here is a form of puerperal septicæmia not necessarily accompanied by putrid lochia,—at least not appreciably so,—but indicated by high temperature, rapid pulse, complete anorexia, heavy sweats, and, later, by herpes labialis, which stubbornly resists treatment until the patient is made to get out of bed. This I have seen often enough, after keeping a woman on her back for some pelvic disturbance, to prevent any mistake as to the relation of cause and effect.

Lying-in women are encouraged to get up for good when they feel so disposed, because there are, to my mind, strong objections to the rigorous maintenance of the recumbent posture. Labour is, in general, a strictly physiological process, and there can be no sound reason why it should be made to wear the livery of disease. Nature teaches this very plainly, for most women wish to get up long before their physicians are willing to let them. The fact of a woman's wishing to get up is to me a very good reason why she should get up. In the second place, few physicians will deny that nothing so relaxes the tone of muscular fibre as a close confinement in bed. In my experience a woman ordinarily feels stronger on the fifth day than she does on the ninth, if rigorously kept under quilts and blankets. Once more: the upright position not only excites the womb to contract, but, by distributing the blood and equalising the circulation, it actually lessens the amount of the lochia and shortens their duration. On the other hand, the dorsal decubitus keeps up a passive congestion of the womb as a whole, the engorgement of the greatly hypertrophied placental site, and a blood-stasis in the now thickened posterior wall,—all important factors in hindering the process of involution. Again: uterine diseases are hardly known among those nations whose women early leave their beds. From passages in the writings of the classics, it is evident that among the ancient Greeks and Romans, those models of physical strength and beauty, the women arose and even bathed in a running stream very shortly after delivery; in some cases, on the very day. Finally: what is sounder than all theory, a sufficiently long and well-sifted experience has proved to me that, by such a treatment, convalescence is rendered far more prompt and sure. At this result, very unexpected to the multiparous patients of the Retreat, they are constantly expressing their surprise.

(To be continued.)

PELLIZZARI, TOMMASI, PERRONCITO, LEWIS, COBBOLD, AND GIACOMINI ON CYSTICERCERCI.

(Concluded from page 691.)

Having demonstrated the fallacy of the propositions advanced by Perroncito in regard to the actual amount of heat necessary for the destruction of cysticercæ, Pellizzari next attacks the question as to the cause of the prevalence of tapeworm. In this view he first adduces some interesting data that had been previously communicated to the Medico-

Physical Academy of Florence by Professor Marchi. On the occasion referred to, Marchi had stated that out of thirty-five *tænia* which he had examined, only one belonged to the species known as *tænia solium*; all the other thirty-four being of the unarmed type, or *tænia mediocanellata*. Reflecting on this very striking fact, and also on the circumstance that he had in vain begged his colleagues to send him specimens of *tænia solium*, Marchi seems to have missed the very palpable explanation of this otherwise strange phenomenon. 'How does it happen,' exclaimed Marchi, 'that, notwithstanding the occurrence of 13,000 measled hogs in the public butcheries, I have seen but one specimen of *tænia solium*, whilst thirty-four cannot have originated from the pig?' 'The wherefore is obvious enough,' replies Pellizzari; 'because our hygienic regulations demand that the flesh of the hogs be raised to a temperature of 60° Cent. (140° Fahr.);' and he then himself immediately proceeds to ask another question, namely, as to how it happens that the *tænia solium* is so frequently seen in other places. To his own question, Pellizzari responds by remarking (1) that there are not so many precautions (of a sanitary kind) taken in other places, and (2) that the people elsewhere consume more slightly salted or uncooked meat, as sausages and so forth (*come salame giovane, saliccia e via dicendo*). Pellizzari, having explained that Marchi's thirty-four tapeworms must all have arisen from the consumption of the cysticercus of the ox, then goes on to speak of the prevalence of tapeworm in Florence, even in little children. This last named feature, he says, is due to the circumstance that raw meat is frequently employed as a restorative (*come cura ricostituente*). 'Thirty years ago, remarks Professor Pellizzari, 'it was just as difficult to find a single *tænia mediocanellata* as it is now easy to find a great number of these worms; and all because it is now-a-days customary to eat the flesh of the ox, either insufficiently cooked or raw. This absolute inversion of the facts of the case affords proof of the correctness of the position sustained by me, to the effect that the cooking of meat up to the degree of temperature necessary for ebullition, ensures the destruction of the cysticerci.' Notwithstanding this statement of his own, Pellizzari thinks that the interference of inspectors may be pushed too far, and thus serve to bring about the very disasters which it should be their supreme object to prevent. Thus he argues against the suggestions of those who would entirely prevent the sale of measly meat, and who would only permit, as obtains in the province of Modena, the melting down of the fat of hogs. Very strict measures of this sort would, as he says, constitute a radical means of entirely stamping out *tænia*, but he also very judiciously reminds the sanitarian (*igienista*) that 'such a step would be a serious thing for the tradesman, bringing injury not only to the municipal administration, but also proving an encouragement to smuggling. In this way the public health would sustain worse injury by the inducement held out to the owners of infected animals to slaughter them in secret butcheries; thus little by little withdrawing the meat from the superintendence of the public officials. By the adoption of fraudulent measures there would be a daily consumption of diseased meat; and thus also, while the public administration would suffer loss, the public health, on the other hand, would gain nothing?' In effect, Pellizzari says, if we advise the employment

of more severe and radical measures than those already in vogue in Florence, we should overburden the tradesman, almost compel him to defraud the exchequer by smuggling, and greatly injure the public health.

The facts and explanations advanced by Italian writers regarding the causes of the endemic prevalence of tapeworm, are in perfect harmony with those we had earlier obtained from other sources. Respecting these causes much has been written that need not be repeated, but some of the facts recently brought forward by Cobbold in his manual of the internal parasites of our domesticated animals, are both new and interesting. The eighth annual report of the sanitary commissioner of the Government of India had already made us acquainted with the fact that during the year 1869, out of 13,818 head of cattle slaughtered in the stations of the Upper Punjab, 768 beasts were found to be infected with measles-cysts. This, as Cobbold remarks (Tommasi's edit., p. 54) 'affords a rate of 5.55 per cent., being a considerable diminution of the proportion observed in 1868, when the percentage gave a total of 6.12. The reduction was without doubt due to the vigilance and enlightenment of the army meat inspectors.' The prevalence, however, of tapeworm does not bear relation to the number of animals infested with cysticerci so much as to the actual number of cysticerci developed in infected animals. Cobbold has frequently pointed out the inadvisability of condemning and burying the carcasses of measly oxen, whether there be few or many cysticerci present, and he has stated, on trustworthy evidence, that even the presence of a few cysticerci is deemed by some inspectors a sufficient reason for rejecting the entire animal. Such a waste should never be allowed. In regard to the numbers of ox-measles present in particular instances, Cobbold also adduces some remarkable facts privately communicated to him by Dr. Joseph Fleming, of the Indian Army Medical Staff. 'None of our experimental animals,' he says, 'though fed with scores of ripe proglottides, yielded such an abundance of cysticerci as Dr. Fleming encountered in the Punjab cattle. In one pound weight of the *psoas* muscles he counted no less than 300 cysticerci.' From this it follows that the flesh of any one largely infested animal is capable, under the favouring circumstances of ration distribution and imperfect cooking, of giving rise to the formation of numerous tapeworms. Some people, including not a few of the profession, make light of the occurrence of tapeworm, and we have seen patients who have been told that the presence of the worms was of little consequence to them. For this wide-spread error, there is some basis in the fact that by far the majority of infested persons suffer only the trifling inconvenience arising from the passage *per anum* of the proglottides; moreover, the less civilised the tapeworm-bearers happen to be, the less are they likely to suffer. The often quoted experiences of Raschin, as related by Leuckart, where 500 hospital patients, in the Baikal district, had tapeworm, although all were being treated for other disorders, affords another argument tending to produce the same conclusion. On the other hand, amongst Europeans a small percentage of patients thus infested, suffer severely. But without trenching upon the symptomatology and prognosis of tapeworm disease, we may further observe that Cobbold has summarised the whole facts of cysticercal prevalence within the compass of two

brief propositions. 'The prevalence or the rarity of cysticeri in cattle in any given country must be determined primarily by the habits of the people; for since the beef-measle can only result from the ingestion by the ox of the eggs of the *tænia mediocanellata*, it is clear that the degree of infection of cattle will correspond with the facilities offered for egg-dispersion. In like manner, it may also be affirmed that the frequency of this particular species of tapeworm amongst the people occupying any given area will bear a strict relation to the amount of underdone meaty beef consumed by the inhabitants' (Tommasi, *loc. cit.* p. 48; *Manual*, p. 37). But another question, and one of great interest to sanitary science, is that which Cobbold has raised in reference to the period that nature requires for the destruction of the cysticeri, or, in other words, for the performance of a natural cure by calcareous degeneration of the parasites. He has shown that all kinds of tapeworm larvæ (measles, bladder-worms, cœnuri, and so forth) have a natural life-epoch assigned to them, and in one of his experiments on a Dutch heifer or young cow he demonstrated that a period of ten months was more than sufficient to insure the perfect destruction of the cysticeri of cattle. Moreover, this law or process of natural cure is not limited to cestode parasites, but affects all other kinds of internal parasites in one or other of their juvenile stages of growth. In the flesh of his experimental animal, Cobbold estimated that there were not less than 12,000 of these degenerated cysticeri. This positive contribution to our knowledge of the limits assigned by nature to the epoch of larval activity, is not merely of abstract scientific interest, but it has important practical bearings inasmuch as it points out in what way an entire herd of cattle (known to be measled by the *post mortem* examination of one animal previously selected for the purpose, or for that matter, if preferred, by the rather barbarous act of excising and examining a fragment of the muscle of a living one) may be freed of its parasitic guests; and it also shows how all risk of propagating tapeworm (without incurring the careful process of raising dead flesh up to a certain temperature) may be effectually prevented. The stockowner has but to remove his animals for six or eight months to localities where no fresh infection can occur, when at the expiration of the time mentioned all those cysticeri that did exist in the beasts at the time of the transfer will have perished. The flesh of the animals may then be eaten with impunity, whether well cooked or raw. This is an important teaching deducible from experimental inquiry, and we are rather surprised that it has hitherto escaped the notice of persons who, though they affect to ignore the value of scientific researches, are particularly anxious to parade their practical knowledge which, unhappily, too often proves a mere cloak for ignorance.

In conclusion, we have only sufficient space left to revert once more to the *brochure* by Giacomini. It affords many interesting details respecting a case in which there was a most unusual degree of infection of the human body by cysticeri. Dr. Giacomini institutes a searching comparison between the human measles procured by himself, and those of the pig sent to him by Professor Perroncito (*loc. cit.*, p. 10). In the human cysticeri he noticed a greater adherence of the capsule to the enclosed measles, and also observed that while the human measles-heads always displayed 32, or in some few cases 34 hooks, in two differently sized circles of 15 or 16 each, the

pig-measles, on the other hand, carried only 24 hooks to the double circle of equal circumference; consequently the hooks appeared to be more crowded together in the human parasite. This fact, as Giacomini remarks, does not of itself constitute an essential specific difference, since variations of the kind not unfrequently occur in cysticeri occupying one and the same host or bearer.

ANATOMY AND PHYSIOLOGY.

ARLOING ON THE PHENOMENA OF DEGLUTITION, AS STUDIED BY THE GRAPHIC METHOD.—In a communication to the Paris Academy on this subject (*Comptes Rendus*, November 2), the author points out the advantages of the method, and gives some of his results with it.

First, as regards the *respiratory apparatus*: the relations between respiration and deglutition have not been much studied, but they are remarkable.

Isolated Deglutition.—By this is meant swallowing of solid food at meals, or of saliva during abstinence. When tracheotomy has been performed on a horse (says M. Arloing), a noise is heard at each deglutition, denoting a sudden and considerable diminution of the pressure in the tracheo-bronchial system. The noise arises from introduction of the external air through the orifice made in the windpipe. This may be proved if a trocar be inserted in the latter, and the cannula connected with a capsule and recording lever. At the moment of swallowing, the lever suddenly goes down, and rises again, generally above its starting-point. This fall is produced almost constantly towards the end of the inspiration. The diminution of tracheo-bronchial pressure might be attributed to two causes; to dilatation of the upper part of the trachea, at the moment of ascent of the larynx, or to the raising of some part of the thoracic walls. The first cause must be put aside. It is true that if the ascent of the larynx be registered, it is found to coincide with the fall of the tracheal pressure; but this fall of pressure diminishes from below upwards. Further, if the upper part of the trachea be isolated, so as to be in connection only with the pharynx, the pressure is found to increase in it, while it diminishes on the chest side. We must, therefore, adopt the second hypothesis. It remains to determine if the dilatation of the chest is due to the ribs or to the diaphragm. If we register simultaneously the tracheal pressure, the movements of the thorax, and those of the abdomen, we find that the fall of pressure coincides with a very slight lowering of the ribs, and a well-marked rise of the abdominal viscera. These phenomena can only be explained by supposing a sudden contraction of the diaphragm at the moment when the larynx rises, and the pharynx, contracting, forces into the trachea a portion of the air it contains.

Successive Deglutition.—By this expression is meant the deglutition of drinks, done by successive draughts. During deglutition, the respiration is not suspended. A pneumographic cincture, placed on the thorax or the abdomen, as also a tube inserted in the trachea, continue to give curves, which, however, present differences, in that they diminish in amplitude, thereafter rising and exceeding their habitual dimensions, and their 'bristly' appearance indicates a series of very small complete respiratory movements, separated by shocks (*soubresauts*).

The shocks correspond to closure of the glottis and to the passage of the wave; and the small respiratory movements to the opening of the glottis, or to the short instant comprised between the passage of two waves. When the individual drinks with great avidity, the thoraco-abdominal walls are simply thrown into vibrations by the small respirations; and when the drinking ceases, the larger movements are resumed with unwonted amplitude.

Secondly, as to the *pharynx*: M. Arloing studied the modifications of pressure in the nasal cavities in man and the lower animals, and in the pharynx and commencement of the œsophagus in the lower animals only. In the case of man, he applied to the face a nose of lead, the cavity of which communicated with a registering apparatus; in the other case, a fine metallic tube was inserted in the nasal bone. Elastic capsules were introduced through the glottis, or into the œsophagus.

Isolated Deglutition.—By such processes it was ascertained that, at the moment of deglutition, there are (1), a forcing back of the air into the nasal cavities, then sudden aspiration; (2) contraction of the pharynx, then relaxation; (3) dilatation, and then constriction, of the œsophagus. In tracings taken simultaneously, it is perceived that there is synchronism, on the one hand, between ascent of the larynx, constriction of the pharynx, forcing back of the air into the nasal cavities and the top of the trachea, and dilatation of the commencement of the œsophagus; on the other hand, between descent of the larynx, aspiration of the air in the nasal cavities (sometimes also at the head of the trachea), the end of the constriction of the pharynx, and the beginning of constriction of the œsophagus. It is hence inferred—1, that, at the beginning of the second stage, there is a separation of the pharyngeal cavity (closed in front by the tongue applied to the palate) into two parts; that in the upper part the pressure increases, while it decreases immediately behind the lower part; and that it is thus necessary to suppose the elevation and tension of the velum of the palate, with Bérard, Debrou, and Maissiat; as also the dilatation of the origin of the œsophagus, with Haller, Maissiat, and Guinier; 2. That the dilatation of the origin of the œsophagus is due to the ascent of the larynx, to the traction which the muscles of the pharynx exert, from below upwards, on the fibrous cord which forms the lower limit of the latter, and, perhaps to traction exerted by descent of the diaphragm; 3. That the aspiration observed at the entrance of the nasal cavities has no connection with the dilatation of the œsophagus, seeing that it is manifested after this, when the pharynx falls back, and its cavity, resuming its ordinary dimensions, exerts a suction on all the neighbouring cavities.

Successive Deglutition.—It has been said that the deglutition of drinks takes place in the same way as that of solids; but differences have already been pointed out, and the following, in addition, occur in the pharyngeal cavities.

1. Man can drink with avidity and without noise, or without emitting a very marked noise. In the former case, the pressure remains uniform in the nasal cavities. In the latter the pressure undergoes changes, as in the deglutition of solids; this is the case also when one drinks with a pipette, either from a small glass, or from one in great part empty. These facts prove, that in the swallowing of drinks 'at a single draught,' (as is commonly said), the

velum of the palate is fixed after being raised, and that the changes of pressure which occur under it are not sensible above it. The respiration is thus suspended, or done by the mouth. In the horse, the velum of the palate is displaced at each deglutition, and the respiration is done by the nose.

2. Further, it appears that the *minima* rise in the curves of the pharynx, while they sink in the curves of the entrance of the œsophagus. The pharynx is thus subject to a mean and permanent constriction, which increases at each deglutition, while the initial part of the œsophagus dilates more and more, presenting, on the arrival of each wave, a new deglutition, which is added to the permanent dilatation, and immediately afterwards, a constriction which forces the wave into the tube.

There are thus well-marked differences between the deglutition of drinks and that of solids.

RIEDEL ON THE REGULATION OF ANIMAL HEAT BY RESPIRATION.—Franz Riegel communicates to *Virchow's Archiv* (Band lxi. Heft 3) a series of interesting observations on the temperature of animals, breathing by means of artificial respiration, through a cannula after tracheotomy, whilst under the influence of curara (woorara). As this substance tends to raise the temperature, and the number of respirations was quite under control of the operator, the experiments seem so far free from fallacy. They were suggested by Ackermann's fine work on the regulation of temperature in the higher animals (*Deutsches Archiv für Klinische Medicin*, Band ii. p. 361). Ackermann has striven to prove that a regulating mechanism for the temperature of the body is to be found not only in the skin, but in the organs of respiration; and he shows that, if the surface of a dog's body be exposed to an atmosphere of equal temperature to his own, or to a higher one, the frequency of his respirations rises in proportion to his temperature, even rising to 150 respirations per minute; and that this frequency of breathing is not due to deficiency of oxygen or excess of carbonic acid in the blood, but to the elevation of temperature. A form of dyspnoea exists, due simply to heat. Fick and Goldstein confirmed this (Ueber Wärmedyspnoea, *Inaugural Abhandlung, Würzburger Verhandl.* 1871).

Riegel observed long ago, that whilst simple warming of the animal greatly increased the frequency of his respirations, once even to 200 per minute, division of the spinal cord in the neck affected these but slightly. His present experiments (on rabbits and dogs) were designed to obviate some sources of fallacy in former ones. He has shown that, when the cervical spinal cord is divided high up, the increased frequency of respiration is no longer found, although the temperature of the surrounding air is raised. Hence the fact that such animals grow warmer in air of higher temperature than those whose cord is uninjured, does not justify us in concluding that division of the spinal cord elevates the temperature, or that there is an inhibitory centre there for heat, which is paralysed by the division of the cord. His experiments tend to show that respiration is an important regulator of heat, just as the skin is. They were carried out last winter in the pathological laboratory at Würzburg. The animals first had the windpipe opened, and a tube was introduced. Then curara was injected into a vein, in sufficient quantity to stop respiration, and produce perfect muscular relaxation. The degree of

curara-poisoning is important ; it must be sufficient to stop voluntary breathing, and keep down muscular action, but further degrees would be injurious. To obviate objections as to temperatures taken solely in the rectum, most of these animals had a thermometer simultaneously introduced through the jugular into the vena cava inferior [sic.—*Trans.*], and care was taken that the bulb of the thermometer should be freely movable in the vessel. The tracheal cannula was connected with an apparatus for artificial respiration, and the animal brought into a chamber with glass windows, provided with thermometers, and warmed by gas underneath. The air introduced was at the temperature of the air of the room (outside the apparatus in which the animal was placed). The number of cubic inches of air introduced each time were always the same—only the number of artificial respirations was altered.

The experiments, of which several are detailed at length, show that with all the circumstances remaining the same, except respiration, the temperature invariably sank, in proportion as respiration was quickened. Riegel has made experiments of similar nature, carrying on the artificial respiration through the nose, instead of doing tracheotomy. The results were similar, although less striking. He expressly disclaims the idea that we shall find an exact parallel in human beings, in whom he thinks the skin, differing from that of dogs or rabbits, plays a more important part in the regulation of heat. He does, however, claim for breathing an important share in the regulation of animal heat, even in ourselves. [The reporter thinks that many facts in pathology tend to strengthen this position. Dr. Edward Smith's experiments, confirmed now by many others both here and abroad, show that, with increased rapidity of respiration, there is diminished excretion of carbonic acid, and hence probably diminished chemical work—one of the chief sources of heat. It does not appear, however, that there was any regular correspondence or parallelism in Riegel's experiments, between the increased number of respirations and the diminished heat. In nature, when the number of inspirations is increased, the number of cubic inches of air changed each time does not generally, if ever, remain the same, but is diminished ; thus widely differing from one of the conditions of Riegel's experiments. These interesting experiments agree with the phenomena of hibernation, and with what is observed in the sleep of young children and young animals—slowness of respiration, with maintenance of equal heat in cold atmosphere, being most marked where epithelial appendages (fur, hair, and feathers) are most developed—for reasons which are obvious.] W. BATHURST WOODMAN, M.D.

CROMBIE ON THE DAILY RANGE OF NORMAL TEMPERATURE IN INDIA.—Dr. Crombie (*Indian Annals of Medical Science*, no. xxxii.) arrives at the following conclusions from numerous observations. 1. The temperature may be ascertained in the axilla for all practical purposes in ten minutes. The mean error after this time is only 0.153° Fahr. 2. The more recent observations of normal temperature in England show that the mean temperature of health in temperate climates has hitherto been overestimated, and that, instead of being put down at 98.4° or 98.6° , as in our text-books, it does not exceed 98° Fahr. 3. One of the effects of residence in the climate of lower Bengal on the health of Europeans is to raise their temperature from 98° to

98.5° Fahr. 4. Change of climate does not influence the character or extent of the daily fluctuation of temperature in health, which observes a curve running parallel with that of European observers, but half a degree higher, and amounts in India, as in England, to about 1.3° Fahr., ranging in the former from 97.7° in the early morning to about 99.0° in the evening, which are the periods of minimum and maximum temperature respectively in both countries. 5. Under all circumstances, not exceeding strictly physiological limits and including gentle exercise, a variation of nearly 2° Fahr. must be allowed for at every hour of the day, and an amplitude of fluctuation of body temperature of 2.6° Fahr., viz., from 97.3° to 99.9° Fahr. in the course of the twenty-four hours. 6. The chief causes of these variations from the usual curve are (1) exercise and food, which raise the temperature, and (2) sleep at unusual hours, which depresses the body temperature. Excluding these causes of deviation, the variations of temperature at each hour of the day are limited to 1° Fahr., that is to say, to half a degree on each side of the normal daily curve of temperature of Europeans in India. 7. The effect of exercise in raising the temperature of the body is invariable and generally considerable, and occurs at all periods of the day ; even after such gentle exertion as that of dressing or changing from the recumbent to the sitting posture, a rise of temperature is observed. The effect of food is less marked, but is distinct after the morning and midday meals. It is lost in the downward tendency of the normal curve of daily fluctuation which takes place at the time of the evening meal. The diminution of temperature during sleep is considerable at all times. 8. The temperature of the body is raised by whatever hinders radiation and evaporation from the surface as a warm atmosphere or thick badly conducting clothing. It is lowered by whatever promotes radiation and evaporation from the surface, as light clothing, the use of a punkah, or a prolonged cold bath. 9. The temperature of natives in India, including East Indians, is higher than that of Europeans resident in it by about half a degree Fahr. 10. The temperature of children is lower than that of adults during the first week after birth. Immediately after birth a very rapid and great diminution of temperature occurs, especially in feeble infants, amounting to 4° or 6° Fahr. in half an hour. This depends on exposure (radiation and evaporation) and the inability of the calorific function suddenly called into force to compensate for the sudden removal of the external (maternal) sources of warmth which occurs at the moment of birth. The temperature of children is liable to greater variations than that of adults from similar causes acting on them afterwards. The health of an European in India may be regarded with suspicion if his temperature is persistently above 98.5° Fahr. in the early morning, or 99.5° Fahr. in the evening, and is not due to exercise. A temperature of 99.0° Fahr. in the morning, or 100° Fahr. in the evening at rest is not incompatible with perfect health in the case of natives. 12. These remarks refer to temperatures taken in the mouth. A deduction of 0.25° should be made from these figures in estimating the value of an observation made in the axilla, or 0.4° should be added if the temperature is taken in the rectum,

T. LAUDER BRUNTON, M.D.

MEDICINE.

HELLER AND THURN ON TRANSFUSION OF BLOOD.—In the *Berliner Klinische Wochenschrift*, August 10, Staff-Surgeon Dr. Heller, of Danzig, relates the case of a soldier, aged twenty-four and a half years, who had ulcers of the stomach, with hæmatemesis and bloody stools. Many remedies were used, including the subcutaneous injection of ergotine; but nothing arrested the bleeding, and the patient was becoming exhausted. On November 27, 1873, at 1.30 P.M., transfusion was performed according to Hasse's method; 360 grammes ($12\frac{3}{4}$ ounces) of sheep's blood being injected. The temperature before the operation was nearly normal. At 2 P.M. it was 101.1° Fahr.; at 2.30 P.M. 103.6° , and afterwards rose to 107.6° . The countenance remained pale, but the pulse became fuller and stronger. He had previously been unable to move himself in bed; but was now able to move on to his right side. Severe rigors came on at 4 P.M., and lasted until 5.30. He then dozed for an hour and a half, often waking to ask for a drink of water. The pulse and respiration were much disturbed. He threw himself about, and loosened the bandage on the arm, which caused some bleeding. Suddenly, about five hours after the operation, he died. The temperature a quarter of an hour before death was 105.26° Fahr. At the *post mortem* examination, pyloric disease and ulcers were found in the stomach, which was also nearly filled with blood. In commenting on this case, Dr. Heller says that at first he regretted that he had not used lamb's blood; and he also feared that too much blood had been injected and too rapidly, as was apparently shown by the rapid rise in the pulse and temperature, and the fresh hæmorrhage into the stomach, but on reading Gesellius' cases he came to the conclusion that these surmises were ill-founded.

The same journal contains a paper on the direct transfusion of lamb's blood, by Dr. Thurn, of Niederrad, near Frankfurt. Several cases are given. H. O., aged thirty-six, was supposed to be consumptive, with night-sweats, cough, diarrhoea, and extreme weakness. For a long time he had been subjected to various kinds of treatment without relief. On March 20, 1874, at 3.30 P.M., assisted by Dr. Stahl, assistant-physician to the Frankfurt Hospital, transfusion was begun. The temperature was 98.24° Fahr., the pulse 88. For the first thirty-five seconds no symptoms appeared. After forty seconds the veins filled, and he got more colour. At fifty seconds he began to breathe quickly, and this increased up to ninety seconds, when he laboured for breath, and the sight was confused. At the end of 105 seconds he seemed to be fainting, and the transfusion was stopped. The temperature was 98.9° Fahr., the pulse 92. The difficulty of breathing lasted fifteen minutes, and then gradually diminished. He complained of great heat and pains in the back. At 4.15 P.M. a severe rigor came on which lasted an hour. The temperature was 103° Fahr.; the pulse 116; pains in the back and head, and heat of body continued to 8.30 P.M., when he perspired; at 9 P.M. the temperature was 99.14° Fahr. * On March 21, he had had a good night. The morning temperature was 98.4° Fahr., the pulse 84. He felt somewhat improved, and had a better colour. At 9 A.M. he passed some urine which contained albumen and blood-corpuscles. This continued throughout the

day. The evening temperature was 100.2° Fahr., the pulse 96. On March 22, the temperature in the morning was 98.8° , in the evening 100.6° Fahr. He was able to leave his bed, which he had not done before for some time. There was albumen, but no blood in the urine. On March 24, he was able to go out. The albuminuria was less. On April 2 he was improved in every respect. He had had a little urticaria; the urine was normal. The instrument used was an India-rubber tube, with a glass tubule at each extremity. The lamb was between five and six weeks old, and lost during the operation 530 grammes (nearly 19 ounces) of blood, about half of which was transfused.

Dr. Thurn has had four other cases. Three were cases of phthisis. Hasse's method was used in all. In one case neither blood nor albumen was observed in the urine. Two of the patients decidedly improved; another was in the last stage of consumption, and died four weeks after the operation, after having felt better for the first fourteen days. The quantity of blood used was from 180 to 200 grammes. The fourth was a case of severe menorrhagia. The patient became bloodless, unconscious, and was apparently dying. Subcutaneous injections of ergotine and cold applications were used without avail. Transfusion was performed on May 5, 1874, at 11.30 A.M., and lasted 125 seconds; pulse, 120; respirations, 36. The patient became conscious during the operation and complained of pain in the back and oppression of breath. The lamb had lost 390 grammes in weight. At 12 o'clock there was great heat of skin and pain in stomach. At 1.30 P.M., she had rigors, lasting nearly an hour; temperature, 101.3° Fahr.; pulse, 96. After the rigor she slept for an hour and a half, and felt better. The menorrhagia was much less; cold applications were continued. Next day she felt improved, but very weak, with occasional pains in the back. In the morning the urine contained blood; in the evening this had disappeared and had given place to albumen. In a few days the albumen also disappeared, and in six days the patient was placed on tonics, and ultimately recovered.

[Whatever may be said of transfusion as a therapeutic agent, these cases are of interest regarded simply as physiological experiments. The occurrence of hæmaturia and rigors after transfusion with lamb's blood seems to be the rule, and these are certainly unfavourable features in the proceeding. I do not remember any mention of similar symptoms following transfusion with human blood. The explanation given of the hæmaturia is, that the serum of the blood of one animal dissolves the blood-corpuscles of another of a different species, and is then excreted by the kidneys.—*Ref.*]

HENRY M. MADGE, M.D

MATTERSTOCK ON THE CHOLERA VOICE.—Dr. G. K. Matterstock gives an interesting report (*Berliner Klinische Wochenschrift*, no. 39, 1874) on the laryngoscopic aspects of the cholera epidemic in Würzburg, in the months of July, August, and September, 1873.

Out of fifty-one severe cases (children included) twenty-two were completely aphonic; in twenty-one there was more or less hoarse voice; in five there was no alteration of the voice; and three patients, owing to the advanced asphyxia, were no longer in a condition to attempt to speak. The character of the epidemic was throughout of the transudative

form. With regard to the relation of the cholera voice to the other symptoms, especially in relation to transudation, it was remarked that the quantity of the fluid evacuated *per os* and *per anum* had no material influence on the earlier or later commencement of changes in the voice, nor on the amount of those changes. The presence of the cholera voice was—in accordance with the observations of Krombholz, Stäger, Tosi, Serafino, and others—a most unfavourable prognostic sign. The patients with aphonia were the severest cases, and all died.

The *vox cholericæ* has hitherto been attributed by some (Merkel, Schultz, etc.) to the drying of the mucous membrane of the larynx and of the laryngeal muscles, from the transudative process; others (Levy, Stäger, etc.) regard it as a purely nervous symptom. The repeatedly observed facts, that the cholera voice bears no proportional relation to the transudation; that patients with profuse watery evacuations were neither earlier nor more completely aphonic than those with less copious secretions; that, on the other hand, in many epidemics, the aphonia was one of the first signs of the cholera process, and occurred before the patient had suffered much from transudation; that epidemics have been described, in which there was no change in the voice (in spite of the severity of the other symptoms); that the highest degree of aphonia occurred precisely in those '*foudroyantes*' cases, where the transudation was slight—all these facts yield abundant evidence against the drying-up theory. There is greater probability in favour of the neurotic doctrine. The absence of any evident anatomical changes in the larynx, and the presence of many other symptoms (such as the paralysis of the skin and vascular system, the condition of the pupil, the arrest of secretion, the præcordial oppression, the hebetude in the severe cases, the lowered tone, and cramp of the muscles, the more or less impaired reflex action, etc.), which can best be explained through the nervous system, render it probable that the alterations in the voice of cholera patients are of a paralytic character. The following facts support this doctrine. Fifteen patients were examined laryngoscopically. All were severe cases; most of them had copious rice-water evacuations, pulselessness, cyanosis, and coldness, cramps, anuria, etc.; nine patients were completely aphonic at the time of the examination, four were hoarse, and two were no longer in a condition to speak, owing to their extremely apathetic condition. The examination was made with ease in all the cases (except in those of the two patients just referred to), there being complete absence of the reflex acts, such as swallowing, choking, and coughing. The lining membrane of the larynx was cyanotic, like the mucous membrane of the lips and mouth; the vocal cords had a dirty appearance, and were slightly injected. The laryngeal mucous membrane gave the impression of dryness from its shining appearance. As regards the form of the glottis, the prominence of the vocal processes was the most marked feature; the vocal cords appeared elongated, and the border of the membranous glottis had a strongly sickle-like excavation directed outwards. The same position of the vocal processes was also seen on *post mortem* examination (when the configuration of the glottis was observed without opening the larynx). On laryngoscopic examination, the vocal cords were seen to present different appearances, both during quiet respiration and on attempted phonation.

In quiet respiration two forms were observed: In one form (presented by two patients) the glottis was widely open, and the vocal cords showed a proper respiratory action; in these cases the sickle-shaped excavations of the membranous glottis and the knee-like projection of the vocal processes, were very marked. The second form was observed in the remaining cases; in these the glottis presented a more or less cadaveric position; the vocal processes approached each other, and divided the glottis into an anterior elliptical space and a posterior one, which varied in shape according to the degree of approximation of the arytenoid cartilages. In these cases the respiratory action of the vocal cords failed altogether, or was only slightly perceptible on deep inspiration; in a few cases in forced respiration, there was an unusual trembling of the vocal cords.

On attempted phonation, the form of the glottis showed either a diminished or an increased approximation of the vocal cords. In seven cases, all of which were aphonic, there was no movement of the vocal cords. These cases all belonged to that form, in which there was also an absence of respiratory movement. In the remaining cases there was a certain amount of respiratory action of the glottis. In two of the aphonic patients the vocal processes almost touched, but the vocal cords were otherwise separated along their whole extent, and in two cases, in which there was hoarseness, the vocal processes were in contact, and the vocal cords were scarcely separated at all, and there was juxtaposition of the cartilages of Santorini; finally, in two cases, where there was a hoarse voice, the arytenoid cartilages advanced well to the median line; the cartilaginous glottis closed completely, and the vocal processes approximated, but the membranous glottis remained open, and presented a canoe-shaped form. In some cases the paralytic signs were more marked on one (always the left) side.

Taking into consideration both the laryngoscopic signs, and the symptoms bearing on the disturbance of voice in the first seven cases, there was a cadaveric position of the glottis in respiration and phonation, immobility or diminished action of the vocal cords and arytenoid cartilages, sickle-shaped excavation and trembling movement of the vocal cords, complete aphonia, the peculiar breathlessness which affected all the severe cases both in speaking and coughing—a combination of symptoms which, the author believes, point to a general paralysis of the laryngeal muscles. The remaining cases showed, with a varying degree of voice-change, a special implication of certain groups of muscles; and, in the form last referred to, the action of the tensors and adductors of the vocal chords was particularly affected. The abductors must also have been implicated in certain cases, viz. those in which the knee-like projection of the vocal processes was present, and the outward movement of the vocal cords impaired. Not only did the laryngoscopic appearances and the other symptoms point to a disturbance of innervation of the muscular apparatus of the larynx as the cause of the cholera voice, but the psychological phenomena of the aphonia, and certain therapeutical experiments led to the same conclusions. Thus the sudden, but temporary return of voice, under emotional conditions, common in ordinary nervous aphonia, was observed in the case of several of the cholera patients.

Oliver's method of laryngeal gymnastics (in which

compression is applied to the wings of the thyroid cartilages, at the same time that attempts are made at phonation) was applied to many of the cases, and all the patients, on whom the method was tried, recovered a more or less hoarse, but still resonant, voice, which lasted a shorter or longer time. A similar result followed the application of a rather strong induced electric current to the skin, the electric contractility being perfect in all cases in which it was tested.

MORELL MACKENZIE, M.D.

BEARDSLEY ON MALARIAL PARAPLEGIA. — In *The Clinic*, October 3, 1874, Dr. C. E. Beardsley reports four cases of paraplegia in children from three to five years of age, who were seen twenty-four hours after the first attack. All of them were females, healthy in appearance, well nourished and well clothed. None complained of pain. The temperature was nearly normal. The pulse was regular, but a little accelerated. They were cheerful, with good appetite. There was no difficulty in micturition or defæcation. The muscles of the upper extremities were perfect in all of their movements and obeyed the dictates of the will. There was anæsthesia of both lower extremities, with absolute paralysis of all the muscles. The above symptoms were developed suddenly without any known cause, but were accompanied by a piercing cry and loss of motion. One of the cases proved fatal. Spinal congestion probably existed in all of them, and in two spinal hæmorrhage occurred, malaria being the cause in all. The treatment consisted of first a saline purgative, followed by bromide of potassium for some hours with quinia; then quinia alone some hours; finally the galvano-faradic current.

RECENT PAPERS.

- On the Local Treatment of Pulmonary Cavities by Injections through the Chest Wall. By William Pepper, M.D. (*American Journal of Medical Sciences*, October, 1874.)
 Post-Paralytic Chorea. By S. Weir Mitchell, M.D. (*American Journal of Medical Sciences*, October, 1874.)
 On a Case of Perityphilitis. By Dr. Brochin. (*Gazette des Hôpitaux*, October 22.)
 On Hysterical Anuria or Oliguria. (*Gazette des Hôpitaux*, October 22.)
 Statistics of Scarlatina. By H. Courtenay Fox. (*Medical Times and Gazette*, November 21.)
 Report of the Committee on Prevailing Diseases. Par M. Ernest Besmer. (*L'Union Médicale*, November 17 and 19.)
 The Treatment of Hooping-Cough. By M. Hervez de Chégoin. (*L'Union Médicale*, November 14.)
 On the Modes of Death in the Earlier Days of Scarlet Fever. By Dr. Clifford Allbutt. (*Lancet*, November 7.)
 The Argument for the Antipyretic Treatment of Fever. By Dr. Yale. (*New York Medical Journal*, November, 1874.)
 On the Treatment of Insanity by Subcutaneous Injections of the Acetate and Chlorhydrate of Morphine. By Dr. Auguste Voisin. (*Bulletin Général de Thérapeutique*, November 15.)
 On the Therapeutic Signs afforded by the Organic Diseases of the Heart. By Dr. Ferrand. (*Bulletin Général de Thérapeutique*, November 15.)
 Clinical History of Diphtheria as observed in Tunis in 1872 and 1873. By Dr. Giovanni Ferrini. (*Lo Sperimentale*, July and September, 1874.)

OBSTETRICS AND GYNÆCOLOGY.

STRONG AND STEELE ON THE DETERMINING OF THE SEX IN UTERO.—Drs. Albert B. Strong and D. A. K. Steele reported to the Chicago Medical

Society (*Medical Examiner*, August 15, 1874) the following observations deduced from the examination of one hundred cases.

1. In the majority of cases, male foetal hearts are slower than female. 2. One hundred and thirty-two foetal pulsations per minute is the average which constitutes a dividing line between the sexes. Below this, sixty-eight and four-sevenths per cent. are males, twenty per cent. are females, eleven and three-sevenths per cent. are doubtful. Above this fifty-three and one-third per cent. are females, twenty-six and two-thirds per cent. are males, twenty per cent. doubtful. 3. The most accurate observations are made during the last four weeks of gestation. 4. The rapidity of the heart's action is increased in proportion to the feebleness of the foetus. 5. Calcareous or fatty degeneration of the placenta renders the pulsations feeble and irregular. 6. In some cases it would be possible to diagnose diseased conditions of the placenta by careful observation of the foetal heart.

Of fifty cases examined consecutively, twenty-seven gave birth to female children and twenty-three to males. The lowest rate observed was 118; it occurred but twice; one each in a male and female child. The highest rate noted was 180, occurring three times, twice in males and once in the case of a female. The average rate of the male pulse was 136.3; of the female, 137; of both sexes, 136.7. Considering the latter as the dividing line between both sexes, a pulse at and below this rate may be referred to males, and that above it to females. In twenty-six cases the sex was correctly predicted, and in twenty-four an error was made.

If the cases be excluded where there was unusual activity of the foetus, the average rate of the male pulse will be found to be 133.6; of the female, 136.2; of both sexes, 134.7.

Considering, then, 134 as the dividing line between the sexes, the diagnosis was correct in twenty-four cases and incorrect in twenty-two. If, however, 128 be taken as the dividing line, the diagnosis was correct in twenty-eight cases and incorrect in twenty-two. There were six female children whose pulse was steady below 128; five males had a steady pulse between 128 and 138; three, between 138 and 148; two, between 148 and 158; and one between 158 and 168. So far as the facts elicited from these observations are of value, it is evident that they have utterly failed to furnish a basis for determining the sex *in utero*.

The observations were conducted by the aid of an ordinary Camman's stethoscope, and our experience has made it clear that more distinct sounds are audible when the bell of the instrument is moistened and applied to the abdomen without pressure, as the peculiar thrill of the foetal heart is lost when the stethoscope is grasped by the fingers.

In conclusion, an opinion as to the sex of the child, founded on the rate of the foetal pulse, is of little more value than a guess; while the presentation generally, and the exact position possibly, may be accurately determined.

JACOBS ON A SUCCESSFUL CASE OF CÆSAREAN SECTION, BOTH AS REGARDS MOTHER AND CHILD. Dr. Jacobs, of Cologne (*Berliner Klinische Wochenschrift*), October 19, 1874, reports that a woman, forty-two years old, a multipara, was delivered two years before with difficulty by the forceps. The conjugate diameter was barely two inches; the

horizontal rami of the os pubis were so driven inwards that the symphysis pubis projected like a beak. A careful examination showed that she was suffering from osteomalacia of the pelvis. As the child was living, it was, after consultation, decided to perform Cæsarean section. The patient was placed under chloroform, and the abdomen was rapidly divided through the linea alba, care being taken to empty both bladder and rectum previously. The incision into the uterus struck upon the placenta, which was detached as far as was requisite to remove the foetus. The placenta was removed immediately after the delivery of the foetus, without any difficulty. The uterus was then compressed and squeezed downwards. No sutures were placed in the uterus, only in the abdominal walls, which were brought together in the usual manner. There was some sickness from the chloroform, which was arrested by the internal and external administration of ice and ice-water. Only a portion of the abdominal wound healed by first intention; the rest granulated. Dr. Jacob considers that the successful result was mainly due to the rapidity with which the operation was performed, and the application of ice.

[This is the third successful case that has been reported lately; two were by pupils of M. Depaul, who strongly advocates the immediate removal of the placenta and the non-use of sutures to the uterus. He also recommends the insertion of a long seton through the two wounds, and out through the vagina. This method was adopted in each of the cases of his pupils.—*Rep.*] W. C. GRIGG, M.D.

RECENT PAPERS.

The Influence of Posture on the Health of Women. By J. H. Aveling, M.D. (*Obstetrical Journal* for November, 1874.)

Clinical Lectures on some Affections peculiar to the Female Urethra. By Dr. Goodell. (*Philadelphia Medical Times*, October 24, 1874.)

On Abnormal Adhesions of the Placenta. By M. Guéniot. (*Gazette des Hôpitaux*, November 10.)

Croup. By Dr. J. B. Hamilton. (*New York Medical Journal*, November, 1874.)

On some Operative Methods required by specially difficult Cases of Ovariectomy and Hysterotomy. By Dr. Brochin. (*Gazette des Hôpitaux*, November 14.)

PSYCHOLOGY.

PARRISH ON THE PATHOLOGY OF INEBRIETY.—Alcoholism, according to Dr. Joseph Parrish, must be looked upon as a secondary condition dependent on the real disorder which he proposes to discuss. In studying the symptoms and conditions which constitute alcoholism, we do not reach its causes and pathology. What is the diathesis, the constitutional tendency, or condition, which leads to the excessive use of alcoholic liquors? He believes the diseased condition to be one chiefly of alimentation. Our appetites vary as to articles of diet; the eating of lime, chalk, clay, etc., shows a disordered alimentation amenable to correction. We are familiar with the demands of appetite or longing in pregnancy, and in convalescence from fever; and the excessive demand for alcoholic stimulants may be placed in the same category. This morbid condition may be the result of disease, or we may recognise in it a pre-natal diathetic condition, which may be developed in the years of minority, or after threescore years of

sobriety. Observation has led the writer to believe that in many cases the solar plexus is the seat of the disease of inebriety. As in some inebriates mental symptoms predominate, so in others the head is less disturbed, and the gastric region is the seat of suffering. He is not satisfied as to the asserted relation between insanity and intemperance. Sometimes inebriety is the exciting cause of insanity, but the facts are over stated. It is his observation that intemperance sometimes takes the place of insanity; that is to say, a person who is in danger of insanity from excessive mental strain or shock, may resort to the bottle and become oblivious of his troubles by a drunken bout, during which the insane tendency explodes or exhausts itself, and the patient recovers. Dr. Parrish discusses the question of treatment, and says that we must deal with inebriety in public and private as a disease, and that restrictive legislation should be applied to the consumer chiefly. The remote or constitutional causes of insanity cannot be directly reached by law, nor can its proximate causes be controlled, except so far as the individual is concerned, under the operation of his own intelligence [and a co-operative public sentiment; and the same may be said of inebriety. The law cannot penetrate the occult forces of our being; it cannot purify the source of disease or divert its current. The real source of prevention is an appreciation by the people of what intemperance really is—a condition of disease that should come as much under the care of the family physician as any other malady. The medical prescription to the inebriate would be uniform and positive, that entire abstinence from intoxicants of all kinds should be the rule of his life, together with the observance of such dietetic regulations as may not offend his sensitive nerve-structure, and the use of such remedies as will promote its renovation, and, if possible, prevent the recurrence of old desires. It is not the appetite for liquor alone, but all the undue cravings of a disordered gastric system, that are to be regulated. It is the general rather than the special condition that is to be treated, and the inebriate should put himself in harmony with the elevating agencies of social and religious life, so that his impaired and enfeebled will may be strengthened, not for the purpose of destroying his natural propensities, but of controlling and regulating them.

MACLAREN ON GENERAL PARALYSIS OF THE INSANE.—Mr. James MacLaren reports (*Edinburgh Medical Journal*, October, 1874), an interesting case of prolonged general paralysis of the insane. He quotes authorities to show that it is rare to find a case of this disorder lasting more than a few years. The patient in question was admitted into the Royal Edinburgh Asylum in May, 1860, as a case of general paralysis, the symptoms being inequality of the pupils, unsteadiness of gait, and indistinctness of speech. The mental characteristics were chiefly considerable melancholia with stupor. He continued unchanged for a year, and was then, for some reason not stated, discharged 'not improved.' In January, 1863, he was re-admitted. He was then silent and stupid, with the indications of paralysis above mentioned. In three months he took to walking round the grounds, and said he was quite well and happy, but articulated with the greatest difficulty. In another three months he commenced to exhibit the characteristic delusions of grandeur. He had the most glorious ideas of his riches, strength, might,

beauty, etc., was forty feet high, was God, was married to the Queen, was the strongest man in the world, and had a 'damnable heap o' money.' In another three months he was more subdued in mind, and weak in body; a little afterwards, he had a series of epileptiform seizures, which were ushered in by a regular congestive attack. He became very weak, and could hardly swallow or speak. Two months later, he was walking about as usual. In March, 1864, the entry was 'no change: is a magnificent specimen of a general paralytic.' On December 15, of the same year, he is noticed as generally failing, and in the March following was too frail to be up. He then rallied, and improved so much during the next three years, that he was tried in the lunatic wards of the Leith poorhouse. He became violent and dangerous, and was returned to the asylum. At present he is staggering and uncertain in his walk, and much down on the left side. The pupils are unequal, the left being the larger. He articulates with difficulty, and with the peculiar stutter of the general paralytic. His tongue is tremulous when protruded. He is dirty in habits and obscene in conversation; full of delusions as to his importance, facile and vacuous. He is a great thief, and hoards up all manner of rubbish, which he thinks of great value, and will decorate himself with tawdry finery. Such a case is remarkable, and the remissions might lead the uninitiated to believe that there is such a thing as recovery from the disease.

G. FIELDING BLANDFORD, M.D.

MAUDSLEY ON THE LEGAL TEST OF INSANITY.—Dr. Maudsley (in *Responsibility in Mental Disease*) has written a most useful chapter on the history of the endeavours which have been made in this and other countries to lay down a legal test of criminal responsibility in mental disease, which may be summed up as follows.

At first, two kinds of insanity only seem to have been recognised by English law—idiocy and lunacy. As time went on, Lord Hale recognised a partial insanity as distinct from total insanity. In 1723, Mr. Justice Tracy said: 'It is not every kind of frantic humour, or something unaccountable in a man's actions, that points him out to be such a madman as is exempted from punishment; it must be a man that is totally deprived of his understanding and memory, and doth not know what he is doing, no more than an infant, than a brute, or a wild beast; such a one is never the object of punishment.'

In 1800, at the trial of Hadfield for shooting at the King in Drury Lane Theatre, Mr. Erskine, counsel for the defence, argued that delusion was the true character of insanity.

In 1812, at the trial of Bellingham, for the murder of Mr. Spencer Perceval, the Attorney-General decided that, 'a man was answerable for his criminal acts if he possessed a mind capable of distinguishing right from wrong.'

In 1843, at the trial of McNaughten, for the murder of Mr. Drummond, the judges, in answer to the House of Lords, stated that, 'to establish a defence on the ground of insanity, it must be clearly proved that at the time of committing the act, the party accused was labouring under such a defect of reason from disease of the mind as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing wrong.'

More recently, in America, in the case of State v. Pike, Chief Justice Perley instructed the jury that they should return a verdict of not guilty, if the killing was the offspring of mental disease in the defendant. And the revised statutes of the State of New York enact that, no act done by a person in a state of insanity can be punished as an offence.

In France, the article of the penal code is: 'There can be no crime nor offence if the accused was in a state of madness at the time of the act.'

In Germany, the section of the penal code is: 'An act is not punishable when the person at the time of doing it was in a state of unconsciousness or of disease of mind, by which a free determination of the will was excluded.'

Dr. Maudsley concludes an able discussion of this most difficult question as follows:—

'It is abundantly evident from this short review of the codes of other countries, that nothing can be said in justification of the superstitious reverence with which English lawyers cling to their criterion of responsibility.'

H. SUTHERLAND, M.D.

DERMATOLOGY.

KAPOSI ON A SECOND ATTACK OF BILATERAL ZONA.—Dr. Kaposi (Moritz Kohn) publishes in the *Wiener Medizinische Wochenschrift*, no. 38, a case of recurrence of herpes zoster. The first eruption affected the left hand, arm, and shoulder, including the skin which covered the trapezius and the scapula, and also the anterior and lateral regions of the chest on the right side. This lasted from April 22 to May 1, and left behind it scars and maculae. Some of the former were large and painful, resembling cicatricial cheloid. On June 25, the same patient presented himself with a fresh eruption of zona. The vesicles occupied the back of the left forearm, and closely surrounded a long bleb and a large dark-green crust. The following day the eruption appeared on the left arm, above the elbow, and afterwards spread to the shoulder. One small patch showed signs of gangrene, but otherwise the disease ran a favourable course, and the crusts were drying up, when, on July 8, pain was felt in the right mammary region, followed by a second eruption of vesicles in the same place as in the first attack. This extended over the first, second, fourth, and fifth intercostal spaces in front, but soon subsided. There was no fresh eruption, but the pustules and ulcers of the left arm were painful and long in healing. [The only other case to which Dr. Kaposi can refer is one by Dr. Wyss, in vol. xii. of the *Archiv der Heilkunde*, p. 290. Here the zoster was lumbo-abdominal; the patient said he had suffered from the same disease in the same place thirty years before, and the scars which were still visible confirmed the statement. Bateman, however, says that herpes zoster may occur more than once in the same individual, and Dr. Tilbury Fox says (*Skin-Diseases*, p. 202), 'The disease rarely occurs twice in a lifetime, but I have known it occur a third time.' That zona may extend to both sides of the body without a fatal result has been known from Tulp's case (*Obs. Med.* lib. iii. cap. 44) in 1652, to those narrated by Bärensprung, Hebra, and Hardy.]

WOLFF ON SCLERODERMIA ADULTORUM.—Dr. J. Wolff brought the following case before the Medical Society of Berlin (*Berliner Klin. Wochen-*

schrift, September 21). The patient, twenty-two years old, found the left knee stiff early in last May. The skin of the ham became hard and inflexible, and in a few days he could not bend his knee. Within two months the affection had spread down the leg and half-way up the thigh. At the end of June the disease had reached its full extent. The skin was then hard, shining, and adherent, so that it could not be raised in folds, and the knee could not be fully extended. [The colour and surface of the skin appear not to have altered, and no mention is made of pain.] From that time, however, involution began, and when the report was made, a fortnight later, the skin on the front of the knee, and the lower third of the thigh, had recovered its normal condition.

[Dr. Wolff appears to be unacquainted with Dr. Fagge's paper on keloid and scleriosis in the *Guy's Hospital Reports* for 1867, in which several similar cases are recorded, of rapid course and rapid involution of scleroderma in adults.—*Rep.*]

WOLFF ON SCLERODERMIA MALIGNA.—At the same meeting of the Medical Society of Berlin, Dr. Wolff announced the result of the case of 'Scleroderma maligna,' reported in the LONDON MEDICAL RECORD, May, 1873 (vol. i. p. 299). The patient, a man aged fifty, was attacked by pain at the angle of the right jaw, in March, 1872. The skin became dense and hard, and the head was drawn down by its contraction. By the beginning of 1873 the induration had spread over the upper part of the chest, and the whole of the right half of the neck. There were no ulcers, no enlarged glands, and no signs of internal mischief; but, from the pain and the 'malignant' course of the disease Dr. Wolff regarded it as the form of cancer described by Velpeau as 'squirrhe en cuirasse,' when affecting the female breast. A piece cut out at this date showed bird-nest capsules and epithelial cells in the loculi of a network composed of white and yellow-elastic fibres.

The patient died (apparently early in the present year, but neither the date nor the preceding symptoms are stated), and the necropsy made by Professor Ponfick fully confirmed the above diagnosis. He described the integuments of the face, neck and chest as infiltrated with scirrhus, which had undergone fibroid contraction; and a recent nodule of cancer was also found in the thyroid.

P. H. PYE-SMITH, M.D.

MISCELLANY.

IN our notice of the late Dr. Edward Smith, in last week's MEDICAL RECORD, it should have been mentioned that among his latest works was one on *Foods*, published by Messrs. King & Co., in the International Scientific Series.

EXTIRPATION OF THE LARYNX.—Professor Billroth performed this operation for the second time on November 11, in the General Hospital of Vienna, on a man aged fifty, suffering from epithelioma of the larynx. The patient died at midnight on the 16th, apparently from hypostatic pneumonia.

STATISTICS OF DISEASE IN GERMANY.—The report of the commissioners on this subject recommends that public notice shall be given by medical practitioners of all cases of scarlet fever, diphtheria, petechial typhus, trichinosis, hydrophobia, and glanders, and that information of all cases of cholera and small-pox shall be given by the masters of the houses in which they occur.

PROFESSORS AND STUDENTS.—The medical schools of Paris and St. Petersburg have lately been the scenes of demonstration, on the parts of the medical students, against certain professors. In Paris, the school has been closed in consequence of the disorderly conduct of the students, when Professor Chauvaffard was about to deliver his introductory address. In St. Petersburg, the object of dislike is Professor Cyon, whom the students desire to have removed on account of the strictness with which he conducts examinations. It is said also that he has given no lectures for the last two months.

TOBACCO-POISONING.—Professor Chevallier reports in the *Journal de Chimie Médicale*, the case of a young man who laid a wager that he would smoke twelve cigars. He felt decidedly uncomfortable at the end of the eighth, and when he had finished the ninth, he was attacked by giddiness and shiverings. These symptoms became worse after the tenth cigar. He refused to leave off smoking, but went home in charge of some friends. He was there attacked by severe pain in the bowels and vomiting. A medical man was called in who could not, however, stop the progress of the attack, and the patient died in the night. It must, however, be taken into account that the victim was suffering from hypertrophy of the heart.

THE ROYAL SOCIETY.—The medals in the gift of the Royal Society for the present year have been awarded by the Council as follows, and will be presented at the anniversary meeting on the 30th inst.:—The Copley Medal to Professor Louis Pasteur, of the Academy of Science, Paris, for his researches on fermentation and on pebrine; the Rumford medal to Mr. J. Norman Lockyer, for his spectroscopic researches on the sun and on the chemical elements; a Royal Medal to Professor W. C. Williamson, of Owens College, Manchester, for his contributions to zoology and palæontology, and especially for his investigations into the structure of the fossil plants of the coal-measures; and a Royal Medal to Mr. H. C. Sorby, for his researches on slaty cleavage and on the minute structure of minerals and rocks, for the construction of the micro-spectroscope, and for his researches on colouring matters.

ANOINTING WITH COCOA-BUTTER IN SCARLET FEVER.—Upon the recommendation of Schneeman, the anointing of the body with fat has been extensively practised in Germany during more than twenty years, with the view of lowering the temperature, and hastening the desquamation. Dr. Bayles suggests, in this connection, the employment of cocoa-butter, as producing a more cooling and refreshing effect upon the patient, and emitting a more agreeable odour in the sick chamber. This agent, on account of its solid consistence, is more readily applied than either fat or oil, and is more easily absorbed by the skin. Furthermore it is thought to afford the system a certain amount of nourishment. In severe fevers, the entire surface of the body should be rubbed with this substance every hour, or at least once every four hours. Its application is also recommended in typhoid fever, in cases where the patients manifest a dread of water, or where the application of water is impossible; likewise in other inflammatory diseases, especially the severer forms of inflammatory rheumatism, and in tuberculosis.

STATISTICS OF INEBRIATE ASYLUMS.—In the New York State Inebriate Asylum, at Binghamton, from September 1, 1873, to September 1, 1874, the number of patients admitted was 190. Of these twenty-three, or thirteen and one-third per cent., have proved refractory and unresponsive. The rest have quietly submitted to the rules and disciplines of the institution; and many have gone out, as is believed, fully restored. Measures are now being taken to inquire into the subsequent history of all those who have been inmates of the institution. A small proportion relapse. Of the 190 inmates during 1873-4, one has returned three times, and sixteen are there for the second term of treatment. But there is a propen-

sity to return in many diseases, especially when the person is exposed to the exciting causes. Mental disorders, as is well known, are very liable to return; and the records of the lunatic asylums will probably show quite as many relapses in proportion as will the inebriate institutions.

SUICIDE AMONG THE ANCIENTS.—The following table of suicides of ancient Greeks and Romans compiled by Dr. O'Dea is of interest:

| NAME. | MODE. | CAUSE. |
|---------------------------------|--------------------------|--|
| Pythagoras | Starvation . . . | Tedium vitæ. |
| Demosthenes . . . | Starvation . . . | Downfall of Athens. |
| Clitomachus . . . | ? | Tedium vitæ. |
| Stilpo | Intoxication . . | ? |
| Metrocles | Suffocation . . . | Old age. |
| Menippus | Hanging | Financial losses. |
| Demomax | Starvation . . . | Loss of influence consequent on old age. |
| Zeno | Strangulation . . | Fracture of a finger. |
| Seneca | Phlebotomy . . . | Political reasons. |
| Pauline, wife of Seneca | Phlebotomy . . . | An attempt caused by unwillingness to survive her husband. |
| Cato | Wound | Political reasons. |
| Otho | Wound | Political reasons. |
| Panthea | Poison | Grief at the loss of her husband in battle. |
| Phila | Poison | Defeat and flight of her husband. |
| Arria | Wound | Defeat and arrest of her husband. |
| Scipio | Wound | Because he had fallen into the hands of his enemies. |
| Socrates | Starvation . . . | The victory of Philip at Chæroneæ. |
| C. Lutatius | Suffocation . . . | To avoid falling into the hands of Marius. |
| Lollius | Wound | The ill-will of Caius Cæsar. |
| Nero | Wound | Because condemned to death by the Roman Senate and people. |
| Lycambus | Hanging | Ridicule. |
| Lambianus | Self-interment . . | Because his writings were condemned and burned. |
| Aristarchus | ? | A dropsy. |
| Erasistratus | Poison | An ulcer. |
| Eratosthenes | ? | Loss of sight. |
| Sylvius Italicus . . . | Starvation . . . | An incurable disease. |
| Diogenes | ? | A violent fever. |
| Porcia | Swallowed live coals . . | Domestic affliction. |

AMERICAN DIPLOMAS.—The *Philadelphia Medical Times*, one of the ablest and most independent of medical journals has the following rather startling observations on this [subject, which occasionally interests our registering boards.—Encouraged by the old saw, 'A continual dropping will wear away a stone,' at the risk of wearying our readers we to-day call attention to the Indiana Medical College as an example of the inevitable results of our American system of medical instruction. In the recent announcement of this college it is stated, 'The Indiana Medical College was organised in 1869, to meet an educational necessity long felt by the profession of the State. It was formed under a resolution of the Academy of Medicine of this city, and received the unqualified endorsement of the State Medical Society.' At present the college forms the medical department of the State University, and has, therefore, every endorsement of respectability, so far, at least, as the outer world can judge. Yet tuition in it is offered free, and attendance only on a single lecture course of about four months' duration is required for graduation. The session opens on October 12, and closes on February 26: whilst the official announcement expressly states, 'Four years of reputable practice are considered equivalent to one course of lectures.' We note these facts not to complain of them, but simply as beacon-lights; not because the profession in this portion of the country is directly responsible for them, or able to change them, but because they are the legitimate and inevitable fruits of that system of medical education which was fastened upon the United States by the founders of the Medical Department of the University of Pennsylvania,—a system still supported by the example, if not the precept, of every medical teacher in the east, outside of Boston.

THE INFLUENCE OF AGE UPON SUICIDE.—The influence of age upon suicide is a study of more than speculative interest, on account of its practical bearings, and of the ease and precision with which it can be demon-

strated. By age is meant the critical periods of life. These periods having many components besides the mere fact of years, it is apparent that what we have to examine is a many-sided phenomenon, including together with it the advance in life, the workings of physiological, mental, and sociological causes. It has been lately examined by Dr. O'Dea, and it appears that the maximum of suicides for both sexes occurs between the ages of twenty-five and fifty-five. Previously to the twenty-fifth year there is a sudden increase from two suicides between the ages of five and ten, to one hundred and thirty-six between twenty and twenty-five. After fifty-five the tendency to suicide declines, but more gradually than it rose, except at sixty-five, where the number increases from eighty-one to eighty-three, a rise so slight, however, as to be little worth considering. There are, therefore, three suicidal periods in life; those of organic and mental growth, of organic and mental completion, and of organic and mental decline. In the first the chart shows 80; in the second, 942; and in the third, 311. Comparing the periods in round numbers, it may be said that they are as one for childhood and adolescence to twelve for adult life, and to four for the years of bodily and mental decay. The influence of sex and its attendant circumstances upon suicides at the different periods of life is shown upon the charts. With females, as among males, there is a sudden and abrupt rise until the twenty-fifth year is reached. This rise is continued to the thirty-fifth year, at which the maximum of suicides occurs among women. The period from the twenty-fifth to the thirty-fifth year corresponds to that of the greatest pressure from domestic troubles and responsibilities, and also with the greatest activity of the maternal functions. The line thence descends abruptly to the forty-fifth year, whence it rises to the fiftieth, the critical period of mature female life, and then goes down, down, until it reaches the level from which it started. There are, therefore, two culminating points, and whilst the line on the male chart is undulating and sustained, that on the female chart is vertical and abrupt. The lower of the male culminating points is the higher of the female, and contrariwise, the lower of the female is the higher of the male. These charts do not show the relative frequency of suicides among the two sexes. The ratio of suicides to population in the United States is (for the period covered by the last decennial census) 25 to 100,000 among males, and 3 to 100,000 among females. The only periods at which suicides are nearly equal for both sexes is from fifteen to twenty years, during which the number of boy-suicides was thirty-four, of girl-suicides, thirty-two. After this the number of suicides among males is much greater than among females.

NOTICE.

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The London Medical Record.

WEDNESDAY, DECEMBER 2, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

WARLOMONT, DE NEFFE, AND VAN WETTER ON THE INJECTION OF CHLORAL INTO THE VEINS AS A MEANS OF PRODUCING ANÆSTHESIA.*

The idea of producing anæsthesia in this way first originated with M. Oré, the Professor of Physiology in the School of Medicine at Bordeaux, on hearing the results of such injections in cases of acute tetanus, which had been communicated to the Société de Chirurgie at Paris. At the meeting in question, M. Verneuil said that he had known five cases of tetanus to recover under this plan, whereas he had never previously seen a single case recover; and M. Boinet had seen two cases recover out of four which had been treated in this way. Not content with this, however, M. Oré asserted his belief that 'injections of chloral by the veins ought to be preferred to the administration of chloroform by inhalation, in order to produce anæsthesia,' and the assertion was followed by a strongly worded protest from the members of the society. At the Académie des Sciences, the proposition fared no better; and lastly, at the Académie de Médecine, M. Vulpian declared that, having made a large number of injections of chloral into the veins of dogs in order to produce insensibility, he had on several occasions known severe hæmaturia to result. M. Blot and M. Gosse- lin both endorsed the sentence of condemnation which the Société de Chirurgie had passed upon the proceeding. In the opinion of M. Gosselin, 'the injection of chloral by the veins presents no advantages, although it is attended with much inconvenience and with some danger; the inconvenience is great, and the danger is real; for adhesive or suppurative phlebitis may occur, or coagulation of the blood; and there may be great difficulty in inducing insensibility, and a persistent restlessness may follow the attempt.'

M. Oré did not allow himself to be discouraged by this weight of disapproval, but by his repeated experiments he induced two other distinguished surgeons, MM. De Neffe and Van Wetter, to follow his example; the former of whom communicated to the Academy of Medicine of Belgium† an account of eleven operations which had been performed by M. Oré and by himself. These cases may be shortly described as follows.

Case 1. In a case of partial resection of the calcaneum, a fine trocar was inserted into one of the radial veins, and a solution of chloral, one part in three ('dix grammes pour trente grammes'), was slowly injected. When twelve grammes had been

inserted, the patient said he was very sleepy. There was no disturbance of the breathing, and the patient was quite calm. When twenty-two grammes had been injected, in less than ten minutes the most perfect insensibility was produced, which lasted during the entire operation, and which was not broken till after the application of powerful and repeated electric currents. It was the report of this case which had drawn forth the condemnation of MM. Gosse- lin and Vulpian, at the meeting of the Académie de Médecine.

Case 2. [This was a case of cancer of the rectum. An account of it was given in the LONDON MEDICAL RECORD for November 18, page 732.]

Case 3. A woman, aged forty-six, underwent an operation for the removal of the entire breast. The operation commenced at 3.45 P.M. on August 8, 1874. At 3.47 the trocar was inserted into the median basilic vein of the left arm, and the injection of the usual solution of chloral began, and was slowly continued. At the end of seven minutes, when four grammes had been injected, the insensibility, with the exception of that of the conjunctiva, was complete. In another minute, the injection of another gramme sufficed to bring about complete insensibility of the entire body. The operation was a large one, and involved the removal of the entire breast, of the great pectoral muscle, and also of a mass of diseased axillary glands; there was severe hæmorrhage, which required the free use of the actual cautery; and it occupied about an hour in its performance. During the first quarter of an hour the insensibility might have been that of a corpse, but after that there were complaints and reflex movements. A profound sleep lasted for seven hours, at the end of which the patient complained of thirst, but recognised nobody, and immediately sank again into a heavy sleep, which continued till early the following morning. Sensibility was not completely restored till the end of twenty-four hours, at the end of which time the patient first complained of pain. Throughout the entire proceeding there was no disturbance of the respiration or of the circulation. The puncture of the vein was followed by no sign of irritation; and the urine which was passed after the operation contained no trace whatever of blood.

Case 4. Injection was made, on account of fatness of the patient, into one of the veins immediately above the wrist of a woman, aged seventy-one, and the whole of one of her breasts was removed. Rather more than five grammes of the solution were injected, and at the end of six minutes insensibility was complete; this lasted for half an hour, and was followed by profound sleep for the next twelve hours.

Case 5. For an operation on the breast of a young woman, aged twenty-one, the injection was made into the median cephalic vein. Six grammes were injected; the insensibility was complete in eight minutes, and lasted for sixteen minutes, being followed by sleep during ten hours.

Case 6. In an operation upon a young woman, aged twenty-two, for abscess in the right ischio-rectal fossa, six grammes were injected into the median cephalic vein. In eight minutes insensibility was complete; it lasted forty minutes, and was followed by sleep for nineteen hours.

Case 7. In an operation upon a man, aged forty, for recurrent cancer of the testicle, 120 grammes of water, holding in solution twelve grammes of chloral, were injected into the left internal saphena

* *Annales d'Oculistique*, September, October, 1874.

† *Académie de Médecine de Belgique* (Bull. tome viii, 3^e série, No. 7 et 8, p. 816).

vein. Insensibility was complete in seven minutes, and remained so for three hours; it was followed by sleep during twenty hours.

Case 8. In an amputation of the toe of a man on account of enchondroma, six grammes of solution of chloral were injected into the median basilic vein. Insensibility was produced at the eleventh minute.

Case 9. In an enucleation of the eyeball on account of sympathetic ophthalmia, six grammes of solution were injected in nine minutes, at the end of which time insensibility was complete.

Case 10. This was one of extraction of cataract in a man, aged seventy-four, who was suffering extremely from chronic bronchitis with emphysema. In thirteen minutes nine grammes of solution were injected; complete insensibility was produced without any sign of danger, and without any difficulty whatever.

Case 11. Nine grammes of solution were injected into the median basilic vein of a man, aged thirty-eight, on account of caries of the tibia. Insensibility was produced in twelve minutes, and was followed by sleep for twenty-four hours.

The solution recommended is that of one part of chloral to three of water, so that from five to fifteen grammes of hydrate of chloral may be injected; and the injection is to be continued till there is absolute insensibility of the cornea.

The injection may be performed with any of the various kinds of apparatus which have been employed for the operation of transfusion. The syringe recommended for this purpose by Dr. Jos. Casse (*De la Transfusion du Sang*: Bruxelles) is said to be very convenient. A ligature is applied to the arm to ensure a projection of the vein to be punctured, and a vein situated as far as possible from the heart should be chosen. The first thing to be noticed is an inclination to sleep on the part of the patient, and sometimes a feeling of faintness. Insensibility generally commences after the first five minutes, and is complete before the end of ten minutes. Four grammes of chloral are generally sufficient to produce a very decided effect.

The period of insensibility is generally succeeded by a calm sleep, which is rarely broken, and which may last for many hours.

The authors assert that their method of proceeding has the following advantages.

1. Complete insensibility may be produced as rapidly as can be wished, without any resistance on the part of the patient.
2. An exact dose may be employed.
3. It is possible to regulate the period of insensibility, and also the succeeding period of calm sleep.
4. The sleep which succeeds is of great value to the patient as a period of repair.
5. There is no period of excitement, and no subsequent vomiting.

They consider the proceeding especially applicable when it is not advisable to give chloroform or ether in the ordinary way; when, for instance there is disease of the lungs, or when the patient is refractory, in operations about the mouth, or the nose, or the respiratory organs; in all cases where a period of after-repose is called for; and they think it of especial value in all cases of extraction of cataract, in consequence of the absence of subsequent sickness.

Dr. Warlomont is unwilling to believe that this plan of injection can ever be anything but accessory to the ordinary method of producing anaesthesia by inhalation, but he admits that the experience of the

above eleven cases tends to show that some of the risks attending injections of chloral, such as coagulation of the blood and the formation of clots, a paralyzing action upon the heart, etc., are not so imminent as has been supposed.

BOWATER J. VERNON.

PREVENTION AND TREATMENT OF PUERPERAL DISEASES. BY DR GOODELL, OF PHILADELPHIA.

(Concluded from page 741.)

The arguments against the customary purge on the second or the third day are to my mind very sound. I am well satisfied that the 'milk-fever,' for which it was originally introduced into practice, is essentially a myth. Genuine 'milk-fever,' as such, is a rare complication, and, when present, of no significance whatever. Unless the nipples be chapped or abraded, the engorgement of the breasts hardly ever leads to abscesses. In proof of this assertion, how rarely does mastitis follow still-birth! In the vast majority of cases, the occasional constitutional disturbance, the chill-and-fever on the third or fourth day—the so-called 'milk-fever'—is owing to a septic cause, and not to a mammary one. True, the breasts are by this time swollen and painful, but it is a mere coincidence, and coincidence is here mistaken for causation. Purges are, therefore, not only wholly unnecessary, but they disturb the equilibrium, and, what is worse, promote the absorption of septic matter. Partly from increasing the activity of the absorbents, the hæmorrhages of labour are very liable to be followed by blood-poisoning. Now, the same result may be logically predicated of a depletion in the shape of a purge. Were my readers to go over their cases of puerperal fever or of other puerperal diseases, I think that they will find some of them dating from the day on which a purge had begun to act. Is it not more than a mere coincidence that these diseases attack a woman usually on the third or the fourth day—viz., the day of or following the administration of the customary purge? Three instances of puerperal peritonitis, two of them ending in death, have come to my knowledge, which were referable as plainly as could be to purgation. In one, the lady was slowly but surely mending from the effects of a severe instrumental delivery. For some reason or other she took, in the third week, an ordinary dose of citrate of magnesia. This violently purged her, and at once brought on a fatal attack of fever. In the other two the patients could not have been doing better, until they got a dose of castor-oil, which was given for no other reason than that the authors of our text-books were haunted by the bugbear of 'milk-fever.' Did space permit, I should like to show that this opinion is not shared by myself alone; that cases of phlegmasia dolens have been traced to the effects of a purge, and that the use of aperients during an epidemic of puerperal fever has been strongly condemned.

Quinia is given without stint, because, apart from its well-known tonic and antiperiodic properties, it possesses others which make it, above all remedies, the one best suited for puerperal disorders. By lowering high temperature it retards the oxidation of tissue, and hinders the formation of fibrinous concretions. By shortening the excursions of uterine fibres in their alternate contractions and expansions, it lessens the diastolic engorgement of the womb,

diminishes the calibre of the uterine blood-vessels, and thereby tends to keep their protective coagula from becoming loose and soluble. By contracting the placental site, it proportionally limits that area of absorption. By constricting the coats of the capillaries, and by its inhibitory power over the migration of colourless blood-corpuscles, it either arrests suppurative inflammation or restrains its violence. Finally, it seems to exert a positive curative action on the blood in cases of putrid or purulent absorption. Clinically, I have found nothing comparable to quinia as a prophylactic against puerperal disorders, as well as a remedy for them. But it must be given early, frequently, in large doses, and pushed to a high grade of cinchonism.

Ergot is a very untrustworthy oxytocic. One never can tell beforehand whether it will behave kindly, or run a muck. It is, therefore, no favourite with me. The vectis and the forceps, being under perfect control, are far better oxytocics; their aid is therefore often invoked, in order to save a woman's strength, and to avoid that laxness of uterine fibre following a long and weary labour. Ergot is, however, given as the head is about to emerge, in order to lessen the chances of a flooding or of unruly after-pains, and to aid the process of involution by condensing the uterine globe to its minimum size. For an analogous reason I feel persuaded that Credé's method of placental delivery provokes to a more complete involution. It certainly empties the womb of all clots, and squeezes it down to its smallest capacity.

The prolonged use of the binder is given up. Even its brief use during the first few hours after labour is not held by me as a cardinal point. I begin to have grave doubts whether it is of any value whatever in the prevention of hæmorrhage. On the score of utterly abandoning it, I am quite open to conviction.

So much for the reasons on which the foregoing measures are based. Let me now give the results. Up to date there have been 756 cases of delivery, with six deaths. The following are the order and the numbers of the fatal cases, as copied from the Case-Book.

'No. 22. Concealed accidental hæmorrhage from the gravid womb. No. 203. Puerperal peritonitis. No. 289. Acute chorea. No. 360. Caries of petrous portion of the temporal bone. No. 398. Chronic pelvic abscess. No. 647. Septic pneumonia.'

The case of puerperal peritonitis was an isolated one. The woman had been abandoned by her husband, to whom she was devotedly attached. She fretted and brooded over this desertion in so despairing a manner as to make me apprehensive of mania. Three other patients occupied the same ward with her, but they escaped from contagion.

Cases 22, 289, and 360 were deemed by me so exceptional that their histories were reported to the Obstetrical Society of Philadelphia, and afterwards embodied in its Transactions (*Am. Journal of Obstetrics*, vol. ii. p. 286; vol. iii. p. 140; vol. iv. p. 126). Case 398 was that of an old pelvic abscess following a previous labour—viz., an abortion produced by the kick of a drunken husband. During the last week of utero-gestation, this abscess began to inflame and to cause so much suffering that very large doses of morphia were needed to control it. Labour very greatly intensified this distress. When the womb was emptied, a tumour was found in the left broad ligament, and all the symptoms of localised peritonitis were present. Under appro-

priate treatment the patient soon began to mend; but on the fourteenth day she was suddenly seized with violent abdominal pain, and fell into a collapse, from which she never rallied. A necropsy revealed an old pelvic abscess, which had burst into the cavity of the abdomen. This case, it seems to me, cannot fairly be attributed to a septic cause, but to the *ante partum* recrudescence of an old lesion. Case 647 is one of doubt in my mind. There were no appreciable pelvic or abdominal lesions; and yet, in default of a necropsy, which was not permitted by her friends, I think it fairer to attribute the pneumonia to blood-poisoning rather than to a non-septic cause.

To sum up then, out of 756 cases of labour there have been two deaths from septic causes; 1 death from the bursting of an old abscess; 1 death from hæmorrhage; 2 deaths from non-puerperal diseases.

Apart from the above record, the Case-Book exhibits no case of phlegmasia dolens, and none of pelvic abscess. One woman, however, had, I am told, a pelvic abscess at home. Through fright at an outbreak of measles in the building, she insisted on rising from her bed and on being discharged on a wet winter night. Although a large proportion of the inmates were primiparæ, and two of them confirmed epileptics, but two cases of eclampsia took place, and these in women who had not been subjected to any prophylactic treatment. The one, while labouring under violent convulsive attacks, was brought in a hack by her friends; the other was seized the day after admission. Both recovered under repeated rectal injections of drachm-doses of the hydrate of chloral, and a final delivery under ether with the forceps.

Since nothing is so fallacious as statistics, even when based on large averages, it is with much diffidence that I offer the above meagre data. They may not sustain my views; but they will, I hope, show that lying-in women can be gainfully treated in a manner less artificial than is customary, and more in accordance with the maxim *naturâ duce*.

One word more: For many reasons the statistics of a lying-in hospital can never compete with those of private practice. Of these I shall adduce but two. In the first place, the former are most trustworthy, for physicians very naturally shrink from reporting their fatal midwifery cases as such. I have known a death from *post partum* hæmorrhage returned as one from 'anæmia,' and another from puerperal albuminuria as a case of 'pneumonia'—œdema of the lungs being present; whilst fatal cases of puerperal septicæmia are constantly being certified to under the heading of some prominent symptom which tells no tale, such as 'peritonitis,' 'pleuritis,' or 'pneumonia.' For instance, during a period of eight weeks of this year, I was asked to see eight cases of puerperal fever,—four of them from one Sunday to another. Of these all but one proved fatal. During the same time I casually became cognisant of seven other fatal cases. Now, during those eight weeks I studied with much interest the weekly returns of the Board of Health, and found there reported just twelve deaths from 'puerperal fever.' There were, however, also reported eleven deaths from 'inflammation of the peritoneum,' one death from 'child-bed,' and one each from 'septicæmia' and 'pyæmia.' Comment on the above is unnecessary; the figures speak for themselves. In the second place, physicians naturally avoid the worry and anxiety, the delay and trouble

incident to difficult labours, in their private practice, especially when such occur in a class from which they can expect no adequate remuneration. A hospital thus becomes the Cave of Adullam for all these abandoned cases. For instance, out of the six fatal cases which I have reported out of the case-book of the Retreat, the one of chorea and that of hæmorrhage were sent to the institution by the family physician,—the former on account of her being unmanageable at home, the latter because her labours were growing more and more difficult from an exostosis. The two epileptics* alluded to, two distressing cases of phthisis and valvular disease of the heart, and many of difficult labour in multiparæ, come under the same category. There are at present in the building two women not yet delivered, who were sent thither by their respective medical attendants. The one is an epileptic primipara; the other is a secundipara with a vesico-vaginal fistula—the result of craniotomy in her previous delivery. It is thus that the death-rates of lying-in hospitals show to disadvantage beside those of private practice.

THE CHEMISTRY OF CREMATION.†

In a paper recently published in a German periodical on the chemical bearings of cremation, Professor Mohr, calls attention to a point which, so far as we know, has not yet been considered.

He remarks that, in the first place, it is necessary that the combustion of the body should be complete. Anything of the nature of distillation gives rise to the production of fœtid oils, such as were produced when in early times dead horses were distilled for the manufacture of sal-ammoniac. Such a revolting process is surely not compensated by the small commercial value of the products obtained. To effect complete combustion, we must have a temperature such that the destruction is final, nothing remaining but carbonic acid, water, nitrogen, and ash; for which purpose a complicated apparatus consuming large quantities of fuel will be necessary. The gases produced can only be destroyed by being passed through red-hot tubes to which excess of atmospheric air can gain access.

On comparing the substances produced by such a total decomposition of the body with those produced in the ordinary course of subterranean decay, it will be seen that one compound is totally lost by burning, the ammonia which results from the decomposition of the nitrogenous tissues. This ammonia, escaping into the air or being washed into the soil, is ultimately assimilated by plants, goes to the formation of nitrogenous materials, and thus again becomes available for animals. In the ordinary course of nature a continuous circulation of ammonia between the animal and vegetable kingdoms is thus kept up; if we stop one source of supply of this substance we destroy the equilibrium, we draw upon the ammoniacal capital of the globe, and in the course of time this loss cannot but react upon animal life, a smaller amount of which will then be possible. There is no compensating process going on in nature, as is the case with the removal of atmospheric oxygen by breathing animals; we deduct from a finite quantity, and the descendants of present races will, in time to

come, have to bear the sin of our shortsightedness, just as we have had to suffer through the shortsightedness of our ancestors, who destroyed ruthlessly vast tracts of forests, thereby incurring drought in some regions and causing destructive inundations in others.

Another loss of ammonia is entailed by civilisation in the use of gunpowder. Nitre results from the oxidation of ammonia, and is a source of nitrogenous compounds to plants, which again reduce the nitrogen to a form available for ammonia. The nitrogen liberated by the explosion of gunpowder adds to the immense capital of the atmosphere, but is no more available for the formation of plants. Every waste charge of powder fired represents a certain loss of life-sustaining material against which the economy of nature protests. The same is to be said of nitroglycerine, gun-cotton, etc., which contain nitrogen introduced by the action of nitric acid.

Wood and coal are other illustrations of finite capital. Every pound of these substances burnt in waste—consumed, that is, without being made to do its equivalent of work—is a dead loss of force-producing material, for which our descendants will in the far-distant future have to suffer. The changes brought about by the cessation of one large supply of ammonia may be compared with geological changes, which, though of extreme slowness, produce vast changes in the lapse of ages.

ANATOMY AND PHYSIOLOGY.

BADAUD ON THE INFLUENCE OF THE BRAIN ON THE BLOOD-PRESSURE IN THE PULMONARY ARTERY. Dr. Badaud (*Verhandlungen der Phys.-Medicinischen Gesellschaft zu Würzburg*, Band viii. p. 1) has investigated this subject in Fick's laboratory. The blood-pressure was not measured directly in the pulmonary artery itself, but was estimated from the pressure in the right ventricle, the pressure during the cardiac systole being the same in the right ventricle as in the pulmonary artery. As the results would have been much disturbed by the operation of opening the thorax, the pressure in the ventricle was ascertained by means of a catheter passed into it through the jugular vein, and connected with a new manometer of peculiar construction invented by Professor Fick. This manometer consists in a glass tube, about half an inch in diameter. One end of this is open, the other is closed by a thin membrane of caoutchouc, on which is glued a round piece of wood, which almost exactly fits the tube, and is kept firmly pressed into it by a strong spring. When the instrument is connected with an artery by means of a rigid tube, the pressure inside forces up the wooden plate and spring, and their movements are magnified by a long lever in much the same way as those of the spring in Marey's sphygmograph. The advantages of this instrument are that it does not alter the quantity of blood in the artery with which it is connected, and that it registers rapid movements with great precision. Their experiments showed that the pressure in the pulmonary artery is very much less than in the aorta, the former in one experiment being 48 millimètres of mercury and the latter 102. When the spinal cord is cut the pressure sinks in both, but so much more in the aorta than in the pulmonary artery, that it becomes almost exactly the

* I am not aware that epilepsy predisposes to puerperal eclampsia—at least I have not found it to do so. But many physicians look upon it as a dangerous complication in labour.

† From *Nature*.

same in both. In the experiment just mentioned it became 18 millimètres of mercury in the pulmonary artery, and 20 in the aorta. This result may be thus expressed. After section of the spinal cord, the right ventricle does exactly the same work at each systole as the left.

When galvanic irritation is applied to the spinal cord after its division, the pressure rises in both the pulmonary and systemic vessels. In one experiment it rose in the pulmonary vessels from 18 to 84 millimètres, and in the aorta from 23 to 87. In another it rose in the pulmonary vessels as high as 108 millimètres. The rise in tension during irritation of the cord is therefore much greater in proportion to the normal pressure in the pulmonary artery than it is in the aorta. Irritation of the splanchnics raised the pressure in the pulmonary artery very slightly; so the rise during irritation of the cord could be due only in a very slight degree to the blood forced into the venous system by the arterial contraction. Compression of the aorta did not raise the pulmonary tension; so the increased circulation through the coronary arteries has nothing to do with the rise in pressure during irritation of the cord.

All these facts show that the pulmonary arteries are kept in a state of tonic contraction, and the right ventricle is regulated by the central nervous system in the same way as the systemic vessels and left ventricle. The tonus in the pulmonary is much less than in the systemic arteries. Irritation of the nervous paths leading to the heart and vessels causes the latter to contract, and makes the former pulsate both more frequently and more strongly. The form of the curves obtained shows decisively that irritation of the accelerating nerves of the heart in the spinal cord renders the beats of the heart more forcible as well as more frequent. [The probable existence of vaso-motor nerves for the lung in the two spinal roots of the first thoracic ganglion was deduced by Schmiedeberg from his experiments in Ludwig's *Arbeiten*, 1871, p. 40.—*Rep.*]

KUNKEL ON THE GASES PRODUCED DURING ARTIFICIAL PANCREATIC DIGESTION.—Dr. Kunkel (*Verhandlungen der Phys.-Medicinisches Gesellschaft zu Würzburg*, Band viii.) finds the following results.

1. In artificial pancreatic digestion of pure fibrin, by means of the pancreatic gland cut small under glycerine, carbonic acid, hydrogen, hydrosulphuric acid, nitrogen, and marsh-gas (CH_4), appear, and traces of other hydrocarbons. 2. The proportion of carbonic acid increases, and that of hydrogen diminishes with the duration of the experiment. 3. Hydrosulphuric acid and marsh-gas only appear towards the end of the experiment. 4. Nitrogen is present in small quantity. It is not due to admixture of atmospheric air. 5. Oxygen was never to be found.

T. LAUDER BRUNTON, M.D.

BÖHM ON RESUSCITATION AFTER POISONING.—R. Böhm, of Dorpat, has made the observation (*Centralblatt für die Medicinischen Wissenschaften*, no 21, 1874), that the action on the heart and nervous system of warm-blooded animals, which is produced by doses of the salts of potash, which till now have been held as fatal, can be removed. When injected directly into the blood of a strong cat, 0.1, and 0.2 gramme of a potash-salt produce rapid sinking of the blood-pressure and arrest of the heart's action; in a few seconds the respiration ceases, and the animal dies in convulsions. If within

an interval, whose duration must not exceed eight minutes (reckoned from cessation of the respiration), artificial respiration be performed, and a moderate compression of the thorax in the region of the heart exerted during passive expiration, then the heart, after a pause in its action which may reach the long duration of forty minutes, begins suddenly to again pulsate regularly. With the restitution of the heart's action, the blood-pressure, which had sunk to the abscissa, reaches in a short time a level which in many cases exceeds the normal. First, from three to five minutes after the beginning of the heart's action, spontaneous respiration returns; then, from three to ten minutes after this the reflex excitability returns, and the animal conducts itself completely like a normal non-poisoned one. The experiment never succeeds where either the artificial respiration or the compression of the thorax have been too long neglected. As in all the experiments the blood-pressure was measured, it was shown that by each compression of the thorax a variation of from thirty to sixty millimètres of mercury was occasioned in the otherwise absolutely quiet arterial circulation. From a practical point of view it is of the greatest importance to observe, that artificial respiration alone (by the tracheal cannula) was never sufficient to produce the result; compression of the thorax was always required in addition. The explanation of these phenomena the author leaves for the present undecided.

WILLIAM STIRLING, D.Sc., M.B.

POLITZER ON THE ANATOMY OF THE EAR.—At a meeting of the Medical Society in Vienna, in the beginning of October (a report of which is given in the *Allgemeine Wiener Medizinische Zeitung* for October 20), Professor Politzer gave the result of some investigations which he had recently made into the anatomy of the ear. He finds that, in newly born children, the cavity of the pyramid containing the stapedius muscle is separated only at the upper part by osseous tissue from the canal through which the facial nerve passes, while the lower part of the cavity communicates freely with the same canal, and thus allows, at this spot, the muscle and nerve coverings to come into actual contact with each other. In the adult, the amount of direct communication between the cavity and canal is very various, ranging from a small opening sufficient for the passage of the nerve to the stapedius, to a large irregular opening. The styloid process, he avers, arises from a cartilaginous body, which not only in the foetus, but also in the newly born, is to be found as an isolated cartilaginous formation; and the upper end of the process does not terminate at the external visible base, but passes through a thin osseous lamella along the posterior wall of the tympanic cavity, reaching as far as the eminentia stapedii. In the adult, the process is sometimes solid, sometimes hollow, but generally there is a cellular structure with or without a central canal.

W. LAIDLAW PURVES.

RECENT PAPERS.

The Phenomena and Functions of Transudation in the Animal Organism. By Professor Filippo Pacini. (*Lo Sperimentale*, October and November, 1874.)
On Alcohol, Aldehyde, and the Vinous Ethers. By Professor Lussana. (*Lo Sperimentale*, October and November, 1874.)

MEDICINE.

BORELLI ON THE PHYSICAL DIAGNOSIS OF INTERSTITIAL HEPATITIS.—Dr. Borelli (*Verhandlungen der Physikalisch-Medizinischen Gesellschaft zu Würzburg*, Band viii.), considers a constant sign of this disease to be a rise of the upper margin of the hepatic dulness, while the under margin remains at or very slightly under the normal position. In other diseases the under margin descends first, and the dulness only begins to extend upwards after the liver has become considerably enlarged. The cause of this is partly the meteorismus, which drives the liver upwards in this disease, and partly the non-resistance of the diaphragm, weakened by extension of the inflammation to it from the liver. Ascites does not usually occur during the neoplastic phase of the disease, but generally commences when the newly formed connective tissue begins to shrivel and to press on the hepatic vessels.

T. LAUDER BRUNTON.

HEYNSIUS ON A CASE OF DILATATION OF THE STOMACH, WITH ERUCTION OF INFLAMMABLE GAS.—In no. 37 of the *Nederlandsch Tijdschrift voor Geneeskunde* for 1874, Dr. A. Heynsius relates a case of a similar kind to those described and commented on by Drs. Schultze and Ewald (see LONDON MEDICAL RECORD, August 12 and 26). Dr. Heynsius was some time ago informed by one of his friends that an acquaintance of his from time to time caught fire. He said that the patient suffered from violent eructation after eating, and that gas was thereby discharged, which caught fire when a flame was brought near, as in lighting a cigar. This had taken place four times; on two occasions it produced rather severe burns, once of the mouth and lips, and another time, when the gas was mostly discharged through the nostrils, of the nose.

On seeing the patient, Dr. Heynsius found him to be a tolerably well-nourished man, aged thirty-five, a clerk by occupation. He stated that for ten or twelve years he had been much troubled with pain in the stomach. The pain was constant, sometimes more, sometimes less severe; and was not relieved by any medicines. Vomiting first occurred five years previously; in 1872 it was very severe, and was accompanied with violent pain in the back and both sides. At that time, the stomach was several times washed out with the stomach-pump; but this rather increased than relieved the symptoms. Since that time the vomiting had occurred sometimes twice a-day, sometimes scarcely twice a-week. The vomited matter was always of a very sour taste, never bitter; it was frequently found to contain food which had been eaten some days previously. He had never seen blood in it. Along with this, he was constantly troubled with a sense of distension in the gastric region, and with violent and offensive eructation. Four years ago, he had just lighted a cigar, when a discharge of gas from his mouth took place, and caught fire. The flame gave little light; it was about as large as the palms of two hands, and the burning was attended with a distinct, though not loud, explosive report. This subsequently happened three times. He had since avoided being very near a flame; when he smoked, his wife lighted his cigar for him. He further said that his bowels had been sluggish, and the fæces hardened. At one time, the

fæces were of a dark colour; but he thought that this occurred when he was taking iron.

Up to the present time the patient had looked fairly well, and had been able to attend to his daily business, which was not very onerous. He thought that he had lost weight in late years, but there was no emaciation of importance. He was of middle height, and well formed. The belly was protruded, especially on the left. The lower ribs on the left side were pushed forwards and outwards. On careful inspection, a bulging was observed extending from the lower part of the left side of the chest downwards, and to the right as far as the umbilicus, ending about four-fifths of an inch to the right of the linea alba. The whole abdomen was tympanic on percussion; on the left side, however, the intestinal percussion-sound could be plainly distinguished from the fuller stomach-sound, which began between the fifth and sixth left ribs, and extended downwards to about an inch and a half below, and about two and a half inches to the left of the navel. The liver-dulness began in the nipple line, at the sixth rib.

On succussion, a splashing sound was heard in the abdomen. There was no trace of tumour.

The patient still vomited frequently. He had no pain in the stomach, but an uncomfortable sense of distension after eating, which was relieved by vomiting or eructation. Meat and milk were ill borne, beef worse than pork; fish, bread, eggs, and butter-milk were much better tolerated; the use of butter appeared to give no trouble.

The case was evidently one of considerable dilatation of the stomach, probably the result of a stricture of the pylorus. That the obstruction was lower down was improbable, as the vomited matter never contained bile, and it was evident that the bile had a free passage downwards, as the fæces were always coloured. No decision could be arrived at with certainty as to the cause of the constriction.

After referring to the cases of Popoff, Frerichs, Schultze (and later on of Ewald), Dr. Heynsius says that his endeavours to collect the gas discharged by eructation failed. The patient, who still attended to his business, was at home only a few hours in the day. The chief difficulty, however, was that eructation generally took place very quickly, so that he had not time to apply the tube for collecting it to his mouth. Dr. Heynsius was, therefore, obliged to content himself with an examination of the vomited matter. The reaction was very acid; and, on standing, a separation into three layers took place. The uppermost layer consisted of thick froth, in which the remains of the meal were recognised (the patient had eaten cauliflower, sausage, and potatoes). The middle layer consisted of a semi-transparent yellow fluid. The lowest consisted of a grey granular mass, also containing *débris* of food.

Microscopic examination discovered the remains of food (fat-drops, muscular fibres, vegetable cells, starch granules); as well as an abundance of *sarcina ventriculi* and a not very great amount of *torula cerevisia*.

An examination of the vomited matter was made four hours after its ejection. In the meantime (it was warm weather) the process of fermentation had gone on, and the gas developed had driven the stopper out of the bottle. The vomited matter was raised to a temperature of 95° Fahr., and the gas was collected over mercury. That which first came over contained in 100 volumes, 78 of carbonic acid and 19.2 of hydrogen; while in some

subsequently collected the quantities were, carbonic acid 85.5, hydrogen 13.9. No marsh-gas could be found.

Much more carbonic acid and less hydrogen were present than was discovered by Popoff and Schultze in the gases discharged by eructation. The greater amount of hydrogen in the gas first collected rendered it probable that a still greater proportion of this gas would have been found, if it had been possible to make the examination immediately after vomiting took place. In the distillate from the vomited matter, butyric acid was found.

There could be no doubt that the phenomenon described in this case depended essentially on butyric acid fermentation, and that the hydrogen thereby developed was the cause of the inflammability of the ejected gas. The development of hydrogen probably takes place to a greater or less degree in various affections of the stomach.

In the treatment, temporary relief only was obtained by washing out the stomach with the stomach-pump. Creasote, carboic acid, quinine, and hypermanganate of soda had little or no effect in arresting the process of fermentation. On the other hand, improvement was obtained by the use of chlorinated water. A. HENRY, M.D.

PHILBERT ON THE TREATMENT OF OBESITY AND POLYSARCIA.—Obesity is, like gout, scarcely a hospital disease, for in general the poor do not suffer from it. Systems of medicine scarcely allude to it: nevertheless, it is a disease that may result in death.

A young physician, M. Philbert, relates (according to an analysis of his brochure of the above title in *La France Médicale*, November 4) his own case, and the treatment which has proved successful in it. At the age of twenty-six he weighed 24 stone, and his girth round the abdomen was 59 inches. His sleep was heavy, his pulse was regular, 72 beats. The action of his heart was natural, and the sounds a little dull; the appetite good, digestion quick, bowels regular; there was great tendency to perspiration, especially at night. On July 15, 1869, he consulted Dr. Labat, who sent him to Marienbad, to the care of Dr. Schindler, who ordered him to rise at six A.M.; between six and half-past seven to drink three glasses of about 7 oz. each of the Kreuzbrunnen spring. At the end of three weeks, half a tea-spoonful of the salt extracted from the water was added. Between seven and half-past eight he had the first breakfast, of two boiled eggs, a cup of tea, and a small roll of bread. The action of the water produced in the course of the morning two soft motions. From nine to ten o'clock he had a vapour-bath every second day, during the first three weeks; after that period, one every day. This bath was given after the following fashion: after sweating was established, friction with a glove, and then a douche of cold water: second sweating, friction with a soft brush: third sweating, stimulation of the skin by flogging it with a birch made of small twigs of poplar with their leaves on, and after this a last douche of cold water (this, after the fashion of the Russian bath): after leaving the bath, friction with vinegar of pine-sprouts: promenade after the bath. At eleven o'clock he had a second breakfast, consisting of two plates of meat or fish, one of vegetables, a *compote* without sugar, half a bottle of wine, and two small rolls of bread. From midday to six in the evening he was ordered to stay in the forest and take as long walks

as possible, without inducing fatigue. At six o'clock he had a dinner of one plate of cold meat, a *compote*, a half bottle of wine and a roll of bread: after dinner, a promenade. At eight o'clock he was shampooed with soap. At half-past eight he went to bed, and had cold compresses applied over the stomach. At the same time, morning and evening, five reducing pills, as they were called, with an alkaline base, were given. This treatment was borne well, and lasted for six weeks. At first the patient walked with great difficulty; by degrees, as his weight diminished, exercise became easier; there was sleepiness, but in a less degree. The thirst, which was excessive at first, diminished gradually; when it was urgent at meals, some lemonade was allowed. At the end of the first week there was a loss of weight of 12 lbs., at the end of the second of 2 lbs., at the end of the third of 6 lbs., at the end of the fourth of 8 lbs., at the end of the fifth and sixth of 7 lbs. each; altogether 42 lbs. in six weeks.

In the middle of September, M. Philbert carried out for a fortnight with Marienbad water, at home, a course identical with that just described, and continued to become thinner. He then went to Fontainebleau to try the grape-cure, which consisted in eating every morning, on an empty stomach, somewhat over 2 lbs. of grapes gathered from the vine, and in walking as much as possible. During the cure at Marienbad and at Fontainebleau all uncooked vegetables and fruit were avoided, lest they should bring on diarrhoea. By November 7th the weight was reduced to 20 stones, and at present the patient weighs only 14 stones, is in excellent health, and his embonpoint attracts no observation.

The most strikingly successful part of this treatment is the action of the waters of Marienbad. The chief constituents of a pint (sixteen ounces) of the Kreuzbrunnen are, sulphate of soda 38 grains, chloride of sodium, 13 grains, and about the same amount of carbonate of soda. The vapour-baths also are a powerful adjuvant. Although stout people usually belong to the higher classes, and can afford to travel abroad, yet there is no reason why they should not try a cure at home, by taking $1\frac{1}{4}$ drachm of sulphate of soda every morning fasting; or they may try various French purgative or laxative springs, such as Brides, Chatel Guyon, Rouzat, Saint-Nectaire. [Of these I have little doubt that Saint-Nectaire, with the addition of a little sulphate of soda, would answer admirably.—Tr.]

The principal measures for reducing obesity, come under four heads: 1. *Régime*; 2. Hygiene; 3. Exercise and Gymnastics; 4. Waters with sulphate of soda. The basis of the *régime* rests on the prevention of the introduction of carbon into the system, or on favouring its transformation, and augmenting the amount of oxygen. The food must, therefore, be non-nitrogenous, varied with a few vegetables containing no starch, and some raw fruit. But the temperament of the patient must be kept in view. The lymphatic should have a red diet, beef, mutton, venison, hare, pheasant, partridge, etc., and the sanguine should have a white diet, veal, fowl, pigeons, oysters, etc. Vegetables, not sweet, or farinaceous, may be allowed: grapes, gooseberries, apples, etc. *Café noir*, tea with little sugar and the addition of a little cognac may be used. We must forbid sugar, butter, cheese, potatoes, pastry, rice, beans and peas, etc.

The hygiene consists in favouring the action of the skin, in wearing a tight roller to support the walls

of the abdomen, in taking plenty of exercise on foot or on horseback, playing at billiards, fencing, swimming, gymnastics, etc.

The Banting treatment is not very different. It consists in abstaining from bread, butter, milk, beer, potatoes, pudding, and from sugar in every shape. It allows some biscuit or dry bread, every kind of fish except salmon, and every kind of meat except pork, all vegetables except potatoes.

Purgatives have a good deal to do with the success of treatment of cases of obesity, and some have thought scammony as effective as sulphate of soda.

J. MACPHERSON, M.D.

DA COSTA ON STRAIN AND OVER-ACTION OF THE HEART.—In one of the Toner Lectures, delivered at the Smithsonian Institute, at Washington, in August, 1874, Dr. Da Costa adds his testimony to the rapidly accumulating mass of evidence showing the effects of strain upon the heart. He first deals with acute strain as compared to less rapidly acting causes. It is not in previously diseased hearts alone that acute strain causes rupture or tears; it is the consequences of such strain in hearts previously healthy that he considers. He gives cases where valves were torn from their attachments, as the consequence of violent effort. The valves which suffer most severely from such causes are the aortic and the mitral; but the same thing may happen to the tricuspid. From the cases given, it appears that such results follow great excitement as well as violent efforts. One case of fright, in a little girl of two years and nine months, resulted in death in seventy-eight hours. The right auriculo-ventricular valves were found to be lacerated and broken in their substance, as were also several of the columnæ carneæ, and chordæ tendineæ. He does not think that these cases can be explained on any hypothesis of a rapidly developed endocarditis. He is, however, inclined to believe that rupture of a valve is often connected with the existence of slight fissures in the valvular vela, which predispose to rupture.

After this, he proceeds to consider more persisting action and shows the connection of 'irritable heart' with excessive exertion combined with mental tension or with diarrhœa. The pulse is small, rapid, and readily compressible. Its rate is much reduced by the recumbent posture. The impulse of the heart is extended, abrupt; the first sound is short, the second very distinct. Occasionally the first sound is replaced by an inconstant murmur. The respiration is not hurried or frequent in proportion to the pulse. The general health often appears good, or at least it may be fully restored while the cardiac malady remains. Such cases Dr. Da Costa saw very frequently in the late civil war.

He is strongly of the opinion that a period of apparent functional disorder precedes the dilatation with hypertrophy which ultimately obtains, with or without accompanying valvular disease. 'Nay, in the light of these remarks, we can understand how even mental emotion, acting through the nervous system on the nerves of the heart, may produce real trouble, and how the worry of life and strain on the feelings, when long kept up, may give rise to conditions which, in figurative language, we call 'heart-weary' and 'heart-sick,' and which, not as a figure of speech, but in truth, may be the beginning of actual cardiac malady.'

He then goes over the physical causes of irritable heart. Excessive work in deep mines, entailing the

climbing of long ladders while carrying heavy loads, employment as bargemen, porters, strikers in iron foundries, are productive of disease, especially of the aortic valves. Glass-blowing he has found to be accompanied by much disease of the heart. Excessive dancing was the cause of disease in one case. Rowing, he considers, will do harm in many cases; and he advises that men intending to follow boating as their chief amusement should consult a careful physician ere commencing, and then have their hearts examined from time to time. He is averse from stopping athletics in consequence of the injurious consequences to some of the votaries. Finding heart-trouble induced in some men by baseball, he examined a number of baseball players, and comes to the conclusion, 'that as regards the effect on the circulation, all active, even violent exercise, is only injurious when too steadily persevered in; and that it is the intermitting which protects, and which is the cause why these exercises and pastimes are less productive of cardiac affection than the hurrying and impeding of the circulation, occasioned less palpably but more constantly, by certain occupations.'

As to the treatment of such cases, the first thing is to preserve general quiet. From the effects of the recumbent posture upon the heart, it is desirable that the patient rest on his back two or three hours a day, and an occasional day or two in bed materially helps. Ice to the chest is only desirable in very stubborn cases. Of medicines, digitalis, belladonna, and the bromides, are the most generally available. In cases of commencing hypertrophy, aconite, steadily employed, gives capital results. In any form of the affection, to remove the cause is a prerequisite for success. He concludes: 'Yet the greatest gain from the study of the subject, its most brilliant results, will come, if by the knowledge acquired of the production of heart-trouble we can prevent its increase. The public, in the matter, err from ignorance, and it is our place to show them that the heart will not, any more than the brain, endure incessant and exhausting labour and excitement; that there are heart-weary as well as brain-weary people; to point out how some occupations predispose to the disorder more than others; anyhow, therefore, the dictates of science, of humanity, and true economy, alike demand that they be less continuously pursued.'

J. MILNER FOTHERGILL, M.D.

SURGERY.

MCLEAN ON ANEURISM OF THE LEFT SUBCLAVIAN ARTERY CURED BY DISTAL LIGATION.—Mr. R. A. McLean reports (*Western Lancet*, July, 1874) the following case, which occurred in Dr. Toland's clinic at the San Francisco Hospital.

John Cross, aged fifty, a miner, was admitted on January 8, 1874, suffering from a large pulsating tumour at the root of the neck, on the left side. Its superior surface was limited internally by the sterno-clavicular articulation and anterior margin of the sterno-cleido-mastoid muscle, and externally by a point beneath the anterior border of the trapezius, just above its clavicular origin. In the interval between the sterno-mastoid and the trapezius, it formed an ovoid tumour apparently as large as the closed hand. Auscultation and palpation elicited the usual signs of subclavian aneurism.

The patient first noticed a slight enlargement above the clavicle a year before, but its progress had been slow until within two months prior to his admission. During this time it had increased rapidly in size. Partial paralysis of the left arm had occurred from pressure upon the brachial plexus, and pressure upon the thoracic duct, interfering with nutrition, had caused considerable anæmia. Tonic treatment and good diet were prescribed, and kept up until January 24. During this time the tumour continued to increase in size. Dr. Toland operated on January 24. He thought the Hunterian operation impracticable, as the tumour involved the first as well as the second and third parts of the vessel; and he accordingly selected the distal operation. The third portion of the axillary artery was chosen for the seat of the ligature. The artery was secured by double ligatures. The pulsation in the tumour was perceptibly lessened immediately after the ligature, and gradually decreased up to the sixth week from the date of the operation, after which no pulsation or bruit could be discovered. The ligatures came away on the twentieth day after the operation, and the wound healed a few days afterwards.

After the cessation of circulation in the tumour, it gradually grew smaller and less painful. The collateral circulation became fully established, the paralysis almost entirely disappeared from the arm, and the pressure upon the thoracic duct was evidently much less, as the patient gained considerably in weight. The left arm remained slightly œdematous, from pressure upon the subclavian vein. At the time of the report the tumour was at least one-third smaller than when the operation was performed. It was hard to the touch, and was evidently being rapidly absorbed.

Hitherto, cases involving such extensive disease of the artery, have usually terminated fatally. The Hunterian or proximal operation was deemed impracticable on account of the deep situation of the healthy portion of the vessel and the large size of the tumour, which of itself would have proved an insurmountable obstacle, covering as it did the route by which the vessel might have been reached in a case not involving so great a degree of disease of the artery. Galvano-puncture and the distal ligation remained as the last resort. The latter was chosen with the view of resorting to galvano-puncture if Brasdor's operation failed. It happily succeeded, and this, with a former case of Dr. Toland's, are the only successful cases recorded of the distal ligation for the cure of subclavian aneurism. Gross has collected twelve cases of ligation of the subclavian artery in the first portion of its course, and seven cases of the distal ligation of various arteries for the cure of subclavian aneurism. Death resulted in seventeen out of nineteen of these cases, from hæmorrhage; the seat of the hæmorrhage being, in nearly every instance, at the distal side of the ligature. It seems reasonable to suppose that this accident might have been avoided in at least some of the cases, if the double ligature had been used. In single ligation the proximal side of the vessel does not generally slough, because the point of ligation is at the junction of the sheath and artery, thus leaving the nutrition of the vessel uninterfered with. The sloughing occurs on the distal side of the vessel; and as that end of the artery remains patulous, hæmorrhage is the result. The reason for this is apparent, when we consider that the denuded portion of the artery is deprived of its channels of nutrition

through the vasa vasorum, to an extent varying with the degree of laceration of the sheath. This result is well illustrated in two cases in which the subclavian was tied on the inside of the scaleni muscles. The first was the case of Dr. Rodgers, in which death occurred on the fifteenth day from hæmorrhage. The other was the case of Professor Parker, death resulting from hæmorrhage on the forty-second day.

When the double ligature is practicable, the advantage is that the denuded portion of the artery between the two ligatures sloughs without leaving either the proximal or distal side of the vessel patulous, thus securing all the advantages to be gained by ligating the vertebral and thyroid axes separately.

HAMILTON ON THE TREATMENT OF FRACTURES OF THE FEMUR BY IMMOVABLE APPARATUS.—In the *New York Med. Journal* for August, Dr. Frank H. Hamilton says: While I recognise the convenience and utility of plaster of Paris, and of other immovable forms of dressings, in the treatment of certain fractures, it has not proved satisfactory, under my observation, when applied in the treatment of fractures of the femur; and especially when applied immediately after the occurrence of the fracture—my own method of treating these fractures, without perineal bands, with side-splints, adhesive-plaster extension, pulley and weight, having given better results (with no accidents) in the adult. In the case of children, my double thigh-splint has also given better results than has plaster of Paris. These methods are far in advance of the double-inclined planes, and of Desault's, Boyer's, Hagedorn's, Gibson's, and other long splints. They avoid all danger of ligation and strangulation of structures; there is no perineal band to cause ulceration; extension is made by a method which equally—when properly applied—shuns the danger of ulceration about the heel, an accident common with the old gaiter; the patients are comfortable; the limbs are seldom united with deformity; and the average shortening is less than with any other method yet devised. The fact that a man walks without a halt is no evidence that there is no shortening of the limb. In this regard patients are very unequal; one, having a shortening of only half or three-quarters of an inch, will limp perceptibly; while another, with a shortening of one inch or even one inch and a half, may not limp at all. This has been observed repeatedly. Nor is it any evidence that the limb is not shortened because, while lying in bed, the heel of the broken limb can be brought down to the level of the other. By pitching the pelvis, the spine remaining erect, the heel may be made to descend, in most persons, two inches or more. Measurements made from the symphysis pubis, or from the round end of the anterior superior spinous process, are unreliable. The patient should repose upon his back, upon an even surface, with his lower extremities as nearly as possible in a line with the axis of his body, the two wings of the pelvis being in the same horizontal (transverse) line. A flexible, graduated tape-line is to be preferred to the steel tape-measure. The foot being steadied by an assistant, the surgeon should put his thumb-nail against the line where it joins the ring, and push his nail into the skin just below the anterior superior spinous process of the ilium, pressing firmly up and back, the back of his nail resting upon the skin. In this he obtains a fixed point, and he can obtain an exactly corresponding point upon the

opposite side. Below, the measurement may be made from either malleolus, but the outer has the most defined extremity, and is generally preferred. In most cases, for some months after the close of the treatment there is some œdema about the ankle, which renders it necessary to use great care in determining the point of the malleolus. The thumb-nail of the opposite hand may be used for this purpose, resting vertically upon the skin (flat against the lower end of the malleolus). There are a few sources of error which cannot be avoided. Occasionally, but very rarely indeed, the malleoli of the two limbs are of unequal length; and, in a few very rare cases, one limb is congenitally, or from defective growth, shorter than the other.

HAHN ON DRAINAGE OF THE ABDOMINAL CAVITY.—In no. 38 of the *Berliner Klinische Wochenschrift* (September 21, 1874), Dr. Eugene Hahn, of Berlin, communicates a case of ovariectomy in which he put in practice the intraperitoneal injections recommended by Peaslee, and the drainage of the abdominal cavity, recommended by Marion Sims in 1873. Sims shows that twenty-four of the thirty-eight fatal cases amongst Spencer Wells's operations, died from septicæmia (Beigel's translation.) Nussbaum says that his twenty-eight deaths after ovariectomy all resulted from the same cause. He thinks that twenty-three of them might have been saved by the use of the drainage-tube. Spiegelberg, in his pamphlet on the diagnosis of cystic myomata of the uterus, says that eight out of fourteen fatal cases were so from septicæmia, and might have been saved by drainage and the use of disinfectants. This treatment is applicable to many other cases than ovariectomy; in fact, to almost all in which the abdominal cavity is laid open; such, for example, as the operation for strangulated umbilical hernia. The subject of the ovariectomy was a midwife, who had noticed the tumour about two and a quarter years before. It was then of the size of a hen's egg, and was first noticed in the left side. After the birth of her fourth child (November, 1873), it enlarged with great rapidity. In April, 1874, about three gallons of colloid brownish fluid were removed by tapping. Some small cysts could be felt through the abdominal walls. Three months afterwards the tumour was as large as ever. Ovariectomy was therefore resolved on, and carried out in a private house. The abdomen then measured nearly forty-eight inches. An incision of about six and a half-inches long was made in the linea alba, and through this the tumour was removed. The right ovary proved to be healthy. As there were numerous adhesions, Dr. Hahn resolved on drainage, and passed the index and middle fingers of his left hand through the wound behind the uterus to the deepest part of Douglas's pouch, and introduced the corresponding fingers of his right hand *per vaginam*, so as to meet them. A curved trocar and cannula were then passed, the fingers guiding them, through the pouch of Douglas into the vagina, and the trocar withdrawn. About 2 feet of drainage-tube, $\frac{3}{4}$ th of an inch in diameter, with numerous perforations, were passed through the cannula. Through this tube, the upper end of which was secured at the lower edge of the incision, a solution of carbolic-acid (1 to 1,000) was injected, till the fluid returned colourless. In the first four hours, nearly $2\frac{1}{2}$ pints of fluid escaped from this tube. The carbolised injections were repeated several times daily. On the fourth day, in

the absence of discharge, and all injected fluids returning colourless, the drainage-tube was withdrawn, but a silver wire was left in its place, as a means of re-introducing it if required. On the eighth day, even this was withdrawn. On the next day after the operation her pulse was 84, and her temperature only 100.8° Fahr., in the evening pulse 92, temperature 100.4° ; whilst next day the temperature was normal, and the pulse did not exceed 80 after this date. The patient was fed for the first two days by clysters of two tablespoonfuls of brandy, with soup and eggs, every three hours. Thirst was relieved by ice. The sutures were removed on the fourth day; the clamp on the twelfth. The bowels acted on the seventh day after medicine given for that purpose, and after this she took solid food. The catamenia followed on the fifteenth day, and she returned home in good health on the twenty-fifth day.

W. BATHURST WOODMAN, M.D.

KAPTEYN ON A RARE FORM OF HERNIAL STRANGULATION.—In the *Nederlandsch Tijdschrift voor Geneeskunde*, no. 38 for 1874, Dr. H. P. Kapteyn describes a rare form of strangulation occurring in a case of scrotal hernia on the right side. The patient, a robust and well nourished peasant, had had the hernia for fifteen years; he had worn a truss, but the hernia sometimes escaped; it was, however, readily reduced.

On July 7 the bowel came down while he was at stool. A medical man was called in, and tried the taxis in vain; another, who was called in consultation on the 8th, injected morphia subcutaneously, but still reduction was impossible. Dr. Kapteyn was now called in, thirty-one hours after the accident, and found the hernia occupying the scrotum, which was of the size and shape of two fists. He proceeded at once to perform herniotomy. On opening what was apparently the hernial sac, he was surprised at not seeing a drop of fluid escape. The incision brought into view a bluish opaque mass, which, by the sight and touch was recognised as omentum. On examination with the finger, a narrowing was found at the external ring; this was enlarged sufficiently to enable the finger to pass into the abdominal cavity. He now endeavoured to reduce the intestine, but could not do so, although the inguinal canal was sufficiently large. Believing that there must be another stricture, he introduced his finger into the opening in the sac, and found that the gut was strangulated by a firm constriction with a sharp circular edge, at the lower part of the scrotum, close to the testis. Guided by his finger, the intestine being carefully held aside, Dr. Kapteyn succeeded in dividing the stricture in three places without injuring the gut. This proceeding was followed by the escape of some dark red turbid bloody fluid; and the hernia was readily reduced. The omentum was extensively adherent to the sac, and was left. The healing of the wound was retarded for some days by sloughing of the omentum; the patient had quite recovered seven weeks after the accident.

Dr. Kapteyn says that he has not been able to meet with similar cases in literature; but, while in London in 1862, he saw Mr. John Couper operate under similar circumstances. A. HENRY, M.D.

RECENT PAPERS.

Varieties of Psaos Abscess. By Walter Rivington, M.B. (*Lancet*, October 31 and November 7.)

- On the Use of the Thermometer in Surgery. By Dr. Rochard. (*Bulletin Général de Thérapeutique*, November 15.)
- Notes on Idiopathic Muscular Fistulæ. By M. E. Vincent. (*Lyon Médical*, November 8.)
- Impressions of American Surgery. By J. E. Erichsen. (*Lancet*, November 21.)
- A Case of Irreducible Inguino-Scrotal Epiplocele: under the care of M. Gosselin. (*Progrès Médical*, November 21.)
- Inflamed Congenital Entero-Epiplocele on the Left Side. By Dr. Dolbeau. (*France Médicale*, November 18.)
- On Dental Fistulæ. By M. Dolbeau. (*Gazette des Hôpitaux*, November 17.)
- On Preliminary Ischæmia by Esmarch's Process. By Dr. Nicaise. (*Gazette Médicale de Paris*, November 21.)

SYPHILOGRAPHY.

PROFETA AND PARONA ON TREATING VENEREAL SORES WITH IODOFORM.—Profeta (*Annales de Dermatologie et de Syphilographie*, tom. v. 1874) first alludes to the accounts of the value of iodoform when applied to ulcerating surfaces of all kinds, by several French and Italian surgeons, and then relates thirteen cases in which it was employed. Two were ulcerating hard sores, and ten non-infecting sores, some of which were phagedenic. In none did any mishap arise; cicatrisation proceeded steadily in all, and when the iodoform was applied to recent non-infecting sores, it healed them with surprising rapidity. The wounds were washed twice daily with solution of iodoform (iodoform, one part; alcohol, five parts; glycerine, fifteen parts) and then liberally sprinkled with the dry powder.

Two inconveniences attend the use of iodoform; its high price, fifteen grains costing one franc at Palermo [5s. 8d. per oz. wholesale in England, *Rep.*], and its disagreeable odour; the latter is so peculiar and penetrating that it renders the patient unfit for society while it is employed. The first case narrated was one of obstinate creeping sore following virulent bubo, which continued two years, and resisted a multitude of caustic, alkaline, and other applications, attaining in January, 1874, a circular shape with a diameter of two inches and three-quarters. When iodoform had been used eight days the wound was a simple granulating surface, and in twenty-four days was soundly healed. The application of the powder is rarely painful, and at once subdues the gnawing pain of seriginous sores, so that the patient tolerates the temporary smarting that sometimes attends the application.

Jullien (*Doyon's Annales*, tom. v. p. 461) describes the experiment of Parona of Novara, with iodoform applied to painful rhagades at the anus.

Parona found that the most effective mode of applying it was as an ointment (one part of iodoform to two parts of lard) spread on lint and inserted three times daily. The pain, especially that during defæcation, is assuaged at once, spasm subsides, and cicatrisation is rapid.

[The reporter has during the last twelve months employed iodoform extensively at the University College and Lock hospitals, as well as in private practice. His experience coincides in the main with that of Profeta and Parona. The reporter has employed iodoform hitherto only as a dry powder, but for seriginous sores of all kinds, as well as for spreading chancres. The iodoform appears to irritate suppurating wounds where there is no specific contamination. For example, iodoform was used in a case where the prepuce had been

circumcised, in order to get at the chancres underneath. Iodoform was at once applied to the chancres, and, as soon as suppuration began along the circumcision-wound, to that also. But the patient complained much of the pain when the inflamed surface was so treated, while none was felt at the chancres, which, moreover, did not inoculate the circumcision-wound. One of the reporter's cases was even better testimony than that of Profeta. The patient, a gentleman, had suffered from seriginous chancre of the foreskin for twelve months, by which a circular ulcer had destroyed a considerable part of the sheath and all the prepuce but a nodule of cedematous tissue connected with the frænum, and was invading the glans. Nitric acid, acid nitrate of mercury, sulphuric acid paste, and the actual cautery, were all freely employed on several occasions, under chloroform. The patient took mercuric vapour-baths also for a considerable time, sufficiently often to maintain spunginess of the gums and foetid breath. No further effect than temporary arrest of the phagedenic action and its attending pain followed each cauterisation. Iodide of starch was then regularly applied. This checked the eroding action, and subdued the pain, but did not produce granulation; and, after a fortnight's trial, it was replaced by iodoform. Then healing began in three days, and continued rapidly without a check, until in a fortnight a sound cicatrix had replaced the angry ulcerating surface. The patient has remained perfectly well to the present time, eleven months.—*Rep.*]

BERKELEY HILL.

RECENT PAPERS.

- The Use of Mercury in Some of the Obscure Forms of Syphilis. By Dr. J. Milnes Fothergill, M.D. (*Practitioner*, November, 1874.)
- The Use of the Constant Current in Spermatorrhœa. By Julius Dreschfeld, M.D. (*Practitioner*, November, 1874.)
- Tertiary Lesions of the Anus and Rectum. By Dr. A. Fournier. (*La France Médicale*, October 31, 1874.)
- A Case of Rare Affection of the Spinal Cord, of Syphilitic Origin. By M. Longuet. (*L'Union Médicale*, November 10.)
- The Therapeutics of Syphilis. By Professor Hermann Zeissl. (*Allgemeine Wiener Medizinische Zeitung*, nos. 38, 39, 40, 41, 42, 44, 45, etc.)

OPHTHALMOLOGY AND OTOTOLOGY.

BURNETT ON A CASE OF MOVABLE EXUDATION IN THE TYMPANIC CAVITY.—Dr. Charles H. Burnett describes, in the *Medical Times and Gazette* for October 17, 1874, one of those not uncommon cases where a movable exudation in the tympanic cavity was attended with variable hearing. The patient complained of deafness on account of having 'a drop in his ear,' the deafness depending on the position of the head, being entirely absent when he was in a supine position in bed, but returning on assuming the erect position or inclining the head a little forwards. Dr. Burnett, believing that 'the drop' was the perception by the patient of the motions of the fluid, causing a variability of hearing according as the position of the head caused a gravitation of the fluid into portions of the tympanic cavity remote from or contiguous to the sound-conducting apparatus or the fenestra, performed paracentesis of the membrane, and forced the fluid from the cavity into the external meatus

by a current of air from Politzer's bag with the happiest results. The use of Valsalva's method for forty-eight hours afterwards completed the cure, and the hearing remained normal. [Would the use of one of Weber-Liel's elastic tympanic catheters not have done equally well, without subjecting the patient to the risk that paracentesis entails?—*Ref.*]

VOLTOLINI ON THE GALVANO-CAUSTIC BATTERY.—R. Voltolini, in the *Monatsschrift für Ohrenheilkunde* for August, describes his small portable galvano-caustic battery, which he recommends for use in aural surgery. He prefers this method for perforating the membrana tympani to all others, as by it he can make instantaneously an opening of the desired size, which remains open and free, does not bleed, and allows the introduction of the cannula without difficulty. He uses the same cautery for the removal of the smallest polypi, or the remnants of larger ones, which have been partially extirpated by a galvano-caustic cutting snare, which he has made for the purpose, similar to the Wilde's snare, but with some improvements, which he thinks make it more easy of application. He also, in another paper in the same journal, describes the application of the galvanic cautery to the burning of foreign bodies in the internal auditory meatus, which cannot be removed in the ordinary way.

WEBER-LIEL ON TENOTOMY OF THE TENSOR TYMPANI.—Weber-Liel gives, in the *Berliner Klinische Wochenschrift* for September 21, the results of his further experience of the operation. He says that he is convinced that many cases of progressive deafness, accompanied by tinnitus, are only to be benefited by this tenotomy, but warns the surgeon that it is not to be looked upon as a remedy against certain diseased processes, but against certain conditions common to different forms of ear-affection, viz., increased tympanic tension and heightened intralabyrinthine pressure. From 225 operations he concludes that tenotomy of the tensor tympani may, where every other means has been found useless, relieve vertigo, abolish or greatly reduce tinnitus, and improve the power of hearing; but relapses in old standing cases are not uncommon, on account of the other secondary changes which have occurred in the middle or internal ears. Where the operation was looked upon merely as a step to further treatment of the tube and cavity, the relapses were much more seldom, and it is in this light that Weber-Liel wishes it to be considered. W. LAIDLAW PURVES.

RECENT PAPERS.

- Records of One Hundred and Five Cases of Operation for Cataract. By B. Joy Jeffries. (*Boston Medical and Surgical Journal*.)
- Report of Clinical Cases of Diseases of the Ear; the Chief Symptoms of which were 'Tinnitus Aurium.' By Lawrence Turnbull, M.D. (*Philadelphia Medical Times*, October 10.)
- A Contribution to the Etiology of Diseases of the Internal Ear. By Dr. St. John Roosa. (*American Journal of Medical Sciences*, October, 1874.)
- Subconjunctival Dislocation of the Crystalline Lens without Traumatic Injury. By Dr. André. (*Annales d'Oculistique*, September and October, 1874.)
- Remarks on the Treatment of Certain Kinds of Conical Cornea by Optical Means. By H. B. Hewetson. (*Royal London Ophthalmic Hospital Reports*, October, 1874.)
- External Linear Extraction of Cataract. By M. Castorani. (*Gazette des Hôpitaux*, November 7.)
- Tinnitus Aurium, or Noises in the Ear. By Dr. Laurence Turnbull. (*Philadelphia Medical Times*, June, 1874.)

On the Treatment of Certain Affections of the Eye by Median Incision of the Cornea. (*Royal London Ophthalmic Hospital Reports*, October, 1874.)

Amaurosis and Amblyopia treated by the Subcutaneous Injection of Strychnine. By Dr. Derby. (*Boston Medical and Surgical Journal*, November 5, 1874.)

REVIEWS.

The Pathological Anatomy of the Nervous Centres. By EDWARD LONG FOX, M.D. London: 1874, pp. 401.

So far as we are aware, this volume of Lectures is the only work which presents in a readable and convenient form for the use of students and practitioners, the pathological information having reference to the Brain and Spinal Cord, otherwise lying scattered in publications of various kinds, necessarily inaccessible to many. That this information is collected by one who has himself added to the common stock of scientific knowledge in this department, offers at once a guarantee of the exactitude and value of this treatise. The vast extent of the subject may, as Dr. Fox urges, well plead in extenuation of any deficiencies or defects in its execution; while he observes with much truth 'that in this department, as in so many others, we are indeed but as children picking up pebbles on the shore of the ocean of truth.'

Among the introductory observations with which the author prefaces the body of his work is the following, which we think worthy of note. 'One consideration is the debt we owe to pathological anatomy for our knowledge of the physiology of the brain and spinal cord. Without for a moment undervaluing the experimental researches of Brown-Séquard on the spinal cord, or the still more important contributions to the physiology of the cerebral convolutions by Hitzig and Ferrier, it must be confessed that nearly all we know of the real functions of the various organs of the encephalon and spinal cord, has been drawn from observations of the effects of lesions. Disease is nature's most delicate experiment; and what knowledge we have of the seat of language in the brain, of the functions of the corpora striata and optic thalami, of the regions specially associated with sensation, with motion, and with thought, is mainly gathered from this, her constant mode of teaching.' The supreme illustration of this proposition needs to be sought for no further than in the pathological investigations of Dr. Hughlings Jackson; but collateral support may be found on all sides.

For convenience of study, the author has treated his subject in two divisions, viz., first, the pathological anatomy of the brain and spinal cord, including, 1, congenital abnormalities of the cerebro-spinal centres; 2, abnormalities of the vascular system; 3, inflammation; 4, degeneration; 5, tumours; and, secondly, the mode in which these pathological results are grouped in certain conditions which symptomatically have been given special names, as mania, melancholia, etc. Dr. Fox remarks that no division can be perfect; thus, 'it is not logical, in a pathological sense, to divide degeneration from inflammation on the one hand, and from some tumours on the other. It is not only probable, it is certain, that some forms of degeneration own an inflammatory origin. It

would have been possible to make the division according to the anatomical constituents, and to have taken the organ to pieces, as it were, and then to have considered in detail the abnormalities of the vessels, of the connective tissue, and of the nerve-cells and nerve-tubes, that go to make up the structure of the nervous system. But a plan of this kind would necessarily have led to much tautology.' The author has, however, appended a sketch of a classification, made upon an anatomical basis, which is not without its value for the sake of comparison.

As it would obviously be beyond our space to attempt an analysis of the entire work, we select for our present purpose a chapter from each of the two principal divisions of the work, viz. (1), the pathological anatomy; and (2) the grouping of the pathological results.

Under the first division, we take the subject of Inflammation;—co-extensive, it might almost be said, with the whole range of lesions of the brain or spinal cord. The pathological changes induced by this condition are followed through the several structures constituting the nervous centres. In treating of inflammation of the dura mater, Dr. Fox traces the formation of bony deposits to inflammation thus. 'In the non-purulent form, the new formation, the result of the inflammation, becomes very quickly the seat of vessels, and is composed of several layers; those nearest the dura mater being composed of compact lustrous connective-tissue fibres, almost as dense as the dura mater itself; whilst the layer further removed from the dura mater is rich in cells, with small and narrow vessels; and the layer nearest the arachnoid, often firmly uniting the arachnoid to the dura mater, is remarkable for very large capillaries. It is from rupture of these vessels that hæmorrhage occurs; the blood being not unfrequently locked up in the lacunæ of false membrane poured out beneath the dura mater. From further alteration of these inflammatory products result the laminae of bone that are sometimes met with on the visceral surface of the cranial dura mater, especially in the falx cerebri and falx cerebelli, and still more frequently on the dura mater spinalis. So far as I know, this ossification is never preceded by the formation of cartilage. The bone, true bone as it is, is formed from fibrous tissue, this fibrous tissue being a further development of the inflammatory exudate from the vessels of the dura mater.' (p. 59.)

Inflammation of the arachnoid, Dr. Fox points out, can scarcely be separated from that of the adjacent structures; and although, therefore, these are treated of conjointly, the author does not omit a notice of the 'various degrees of thickening of arachnoid, with sometimes deposit of lymph on the upper or under surface of its visceral layer, if not of both. The arachnoid may appear milky from two causes; either from the presence beneath it of slightly turbid fluid, such as the cerebro-spinal fluid in not quite a normal condition, or from the faintest commencement of thickening of the membrane itself.' Then follows a description of the various morbid conditions in which thickening of the arachnoid is met with; e.g. granular kidney, senile dementia, heart-disease, cancer, cerebro-spinal meningitis, tubercle, and disease or injuries of the dura mater.

The impossibility of separating the inflammatory condition of the arachnoid from that of the pia mater is shown by the occurrence of the deposition

of lymph or pus on its surface. 'This is especially seen to be the case in tuberculous and in cerebro-spinal meningitis. In the former case, indeed, the arachnoid, when inflamed, seems only so in direct ratio and extent with the pia mater, and the pia mater may be affected whilst the arachnoid is almost wholly or wholly free.' . . . 'Although it is difficult to separate the abnormalities of the pia mater from those of the arachnoid, yet it is generally easy to speak with certainty of these abnormalities having their origin in the pia mater.' (p. 63.)

Dr. Fox observes that whether meningitis ever occurs independently of syphilis, rheumatism, alcoholic poisoning, tubercle, anæmia, or mechanical irritations, is, at least, an open question. The constitutional origin of meningitis is often very far from clearly made out. We remember to have seen an instance in which, after amputation of a lower extremity, without any untoward symptom, the patient became listless and apathetic, and in a few days died, without any obvious reason. On *post mortem* examination, the whole cavity of the cerebral arachnoid was found lined with a thick layer of yellow lymph. Of course there might have existed one or other of the constitutional conditions above referred to; but, owing to the obscurity of the symptoms, there was no indication leading up to either.

The anatomical description of the membrane in different degrees of inflammation is fully and well given by Dr. Fox. The condition of the brain and spinal cord, the author adds, varies in meningitis. 'Sometimes the organs are healthy, or nearly so; in other cases the external cortical layer is found adherent to the pia mater, and is detached with it. In others, again, there is simply hyperæmia, or more or less induration; but softening is more common, varying much in degree, but not unusually very general.' Dr. Fox states that softening of the subjacent nerve-substance is less frequent in the spinal cord than in the brain. In this opinion we concur, as we have often failed to meet with softening in cords from cases of spinal meningitis.

Dr. Fox does not admit a difference between acute hydrocephalus and the condition of the ventricles in tuberculous meningitis. Acute hydrocephalus he holds to be generally tuberculous meningitis, with the lining membrane of the ventricles more implicated than is usually the case in ordinary meningitis of the base. A similar condition, he adds, may be found in chronic hydrocephalus, which is not usually an inflammatory affection; in general paralysis of the insane, in chronic mania, and sometimes also in melancholia. External hydrocephalus the author rightly disposes of as not existing otherwise than in atrophy of the brain, with substitution of cerebro-spinal fluid for the shrunken convolutions.

Encephalitis, with or without cerebral abscess and Myelitis, comes next under consideration in this chapter, and is described at considerable length. This last named lesion is one not always easy to distinguish from other or even from *post mortem* changes. That softening is not simply a result of meningitis may safely be affirmed, since it is to be found without this antecedent condition. That the account given by Dr. Fox of this lesion is correct, there can scarcely be a doubt on the minds of those who have had experience in this portion of pathological histology. The description is illustrated by two well executed and truthful lithographic representations.

Our space compels us to pass over without detailed

consideration the two following chapters on Degenerations and on Tumours, both of which are as fully and elaborately handled as those which precede them, and of which we have presented an imperfect outline.

The second division of Dr. Fox's treatise, as already stated, is occupied with the consideration of pathological results grouped under certain recognised names. In order to exhibit the author's mode of discussing these, we take for our illustration Facial Paralysis. Dr. Fox, with reference to the pathological history of this affection, observes that in our ordinary way of speaking of it we include a great variety of morbid conditions. In order to understand these we are thus reminded of the origin and course of this nerve. 'Here again we owe our thanks to Stilling and Lockhart Clarke for the discovery of the relations of the nucleus of the facial with the nuclei of other nerves. The hypoglossal, the vagus, the spinal accessory (in part at least), the facial, and the fifth, all have nuclei closely associated with each other in the lower part of the medulla oblongata. Besides these, close to the olivary body, the sixth nerve arises from the same nucleus as the facial.' Dr. Fox further, in connection with this topic, points to the decussation of fibres of the facial across the raphe, high up in the medulla; and then follows the course of the nerve to its exit from the skull and its ultimate distribution. The division of lesions of the facial nerve into those inside, and those outside the stylomastoid foramen, is justly regarded by the author as inferior to that by M. Jaccoud, into cerebral and peripheral; the peripheral being again divided into basilar, interstitial, and superficial.

'Central lesions,' Dr. Fox adds, 'confined to the nuclei of this nerve, are extremely rare. Hæmorrhage into that portion of the medulla would very rapidly prove fatal. Still, judging by the analogy of glosso-pharyngeal paralysis, a lesion that implicates these nuclei may exist.'

Dr. Hughlings Jackson's explanation of cross paralysis is here quoted by the author. The facial nerve being paralysed on one side, the limbs on the other—'Since the nerve-fibres for the limbs cross below the pyramids, those of the left arm and leg will pass on the right side of the pons, on their way to the higher parts of the motor tracts. But the facial nerve of the right side runs through the lower part of the right side of the pons to its nucleus, on the floor of the right ventricle. Hence a clot, which damages the right facial nerve, damages also the motor fibres which have come over from the left arm and leg.' In this complete manner Dr. Fox traces the various lesions of the brain and medulla, so far as known to be associated with affection of the facial nerve; observing, 'The lesions in the brain itself affecting any portion of the portio dura directly must be in the pons, the crura cerebri, the optic thalami, or the corpora striata. But any lesion of the cerebral hemispheres that causes either pressure or irritation of the corpora striata may indirectly induce slight paralysis of some fibres of the portio dura.' The lesions of the facial nerve after it has emerged from the stylo-mastoid foramen are next described; but here it is unnecessary to follow our author. Nor for the purpose in hand is it requisite to go over the subsequent sections of this work.

We trust that we have in the preceding extracts and observations sufficiently set forth its character. To

have attempted an exhaustive analysis of such a series of anatomical demonstrations as is therein contained, would inevitably have involved some degree of injustice to the author—and still more to the readers. We should fail in our duty to the latter if we did not endeavour to impress upon them that this work, for the present at least, stands alone in scope, and could not easily be surpassed in execution. The bibliography that is appended to each section would alone render it a book to be consulted by all who are interested in the prosecution of pathological science.

W. B. KESTEVEN.

The Period of Infection in Epidemic Disease. By WILLIAM SQUIRE, M.D., M.R.C.P. J. and A. Churchill. London: 1874.

We cannot say, after a careful perusal of Dr. Squire's essay, that he has added much to our knowledge of the duration of the incubation-period in epidemic disease. Indeed, of the majority of epidemic diseases, such as typhus fever, enteric fever, small-pox and cholera, nothing of any importance is to be found on the subject of incubation; and what there is in reference to rubeola, measles, and scarlatina is rather confirmatory than new.

Of the duration of the period of infection in epidemic diseases, by far the most important question in reference to the spread of these diseases, the information afforded is not only very scanty, but in our opinion very incorrect. Dr. Squire divides infectious diseases into two classes; one consisting of diseases which have a long incubation-period, such as small-pox, typhus fever, and enteric fever; another comprehending diseases which have a short incubation-period, such as erysipelas, scarlatina, and cholera. Speaking of the first class, he says, 'Infection continues with great intensity during the earlier convalescence. In small-pox, measles, mumps, and varicella, for a fortnight after the eruption the greatest care is requisite to guard against their spread; but many instances point to the infection of those diseases of slow ingress disappearing in a comparatively short time afterwards, so that three weeks may often suffice to terminate the persistence of personal infection; this, in small-pox, corresponding to the disappearance of the last pustular crusts.' Now, as regards intensity of poison in typhus fever, this is simply, and without any qualification, the very reverse of fact. At no period of this disease do we think that the poison admits of being described as 'intense,' much less the period of convalescence. There is, we believe, excluding the infectious bowel-diseases, no disease whose poison can be so rapidly and completely destroyed, by the simple means of abundant supplies of fresh air, as typhus; and no infectious disease, individual cases of which may be attended upon with so much impunity. Attendants upon single cases of this fever more rarely contract it than under the same conditions they contract small-pox, scarlatina, or measles. Even when the poison of typhus is concentrated, as in the wards of fever-hospitals, it is rare for nurses, exposed as they are for twelve hours daily to the exhalations of twenty or thirty fever-patients, to succumb to the disease until after an exposure of from six weeks to two months. The present writer was exposed to the poison of typhus for eighteen months before he contracted it; and he has at present under his care a patient who resisted typhus poison in a highly concentrated form for ten months. Now if the infecting cause were 'intense,' the impunity

described would not have had place; and it cannot be said of small-pox, scarlatina, or measles that similar exposure has been attended with a like immunity. As regards the persistence of infection during the earlier convalescence of typhus, we dare say that of no infectious disease may it be affirmed with so much certainty as of typhus that, as soon as fever has gone and the appetite has returned, the patient, having been well washed and supplied with clean clothing, may be safely permitted to mix in society. There are here no crusts as in small-pox, no scales as in scarlatina, and no morbid intestinal products as in enteric fever. The proof of all this is simply the fact that, during early convalescence, typhus fever patients have again and again been sent from fever-hospitals to convalescent homes without infecting the other patients. To our own certain knowledge, early typhus convalescents have frequently, and in considerable numbers, freely mingled with enteric fever patients and with scarlatina patients without communicating the disease in a single instance. With these facts before us, we cannot help dissenting from Dr. Squire's statement on page 45, that typhus fever is the 'most infectious of diseases;' nor can we think with him that Dr. Murchison's statement that typhus convalescents do not spread typhus, requires any correction. But one statement in the quotation we have made from Dr. Squire's paper appears to us to require very serious correction, inasmuch as, if acted upon, it is reasonable, or at least wise to assume, that it would contribute in no small degree to the spread of the most infectious and most loathsome disease known, to wit, small-pox. Dr. Squire in effect says that personal infection may often disappear in small-pox in three weeks, and that this time corresponds with the falling off of the crusts! This surely is dangerous doctrine. Would Dr. Squire recommend the mixing in society of desquamating scarlatina patients? And yet, to let loose upon a community small-pox patients, as soon as their crusts had fallen off, would be about as safe as to let loose scarlatina patients whilst desquamation was actively going on. Dr. Squire appears either to ignore or to have forgotten the desquamation or desiccation which follows the fall of small-pox crusts; and that *even in discrete variola the crusts* often adhere until the twentieth day on the face, and of course on the rest of the body a little later. 'There remains in their place,' says Trousseau, 'not a depression, but a projection of a violet-red colour, deeper in shade if the individual be exposed to cold. On this projection a small scale of epidermis is seen to form; this, after some days, becomes separated and is replaced by a thinner one, which in its turn falls off, and gives place to another; and so on in succession during ten, fifteen, twenty, or even thirty days.'

Now, without maintaining that the poison of small-pox is retained in these scales and may communicate the disease, this much is clear, that in the mildest form of variola, morbid products may continue to be thrown off the body, according to Trousseau, for nearly two months; and surely no sane man, with this fact before his eyes, would say that personal infection in small-pox (as far as appears from the paper, too, any kind of small-pox), will have ceased to exist in three weeks. We fear that the fall of the crusts is too often taken as the indication of the time when a patient may safely mix with his neighbours; and that in this way the disease is to no small extent propagated.

There are several curious statements in this monograph; for instance, the doctrine that 'measles is more common in winter and spring, because the pulmonary mucous membrane is then more susceptible'; and, that 'scarlet fever continues to be infectious long after all remnants of local morbid action have been removed.' One more is so characteristic of Dr. Squire's method of arriving at general conclusions, that we quote it entire. 'A midshipman of H.M.S. *Shannon* was put on the sick list 2nd May, 1857, for a wound of the foot; on the 7th of May he was attacked with febrile symptoms which proved to be those of scarlatina. The ship anchored in Simons Bay, Cape of Good Hope, on the same day, not having communicated with the shore, or with any vessel since leaving England, on the 25th of February. The *Shannon* was at Portsmouth in February, 1857, when some children near this young man's father's house at Southsea had scarlatina. Here, although the infection had lain dormant for nine weeks, it becomes operative in the usual period of incubation, five days after a susceptibility is induced by the wound.'

Now, we venture to say that there is not a particle of evidence in the extract which we have made to justify the conclusion that the midshipman referred to caught his fever, *if fever he ever had*, at Portsmouth. The evidence consists of a series of pure assumptions; to wit, first, that the infection had lain dormant for nine weeks; second, that the usual period of incubation in scarlatina is five days; and third, that susceptibility to scarlatina is produced by wounds. As regards the incubation period of scarlatina, the facts on the subject are unsatisfactory in the extreme. Aitken fixes this period at from eight to nine days. Trousseau says, 'This period cannot be rigorously determined in the present state of our knowledge.' (*Clinique Médicale*, tom. i. p. 100.) Dr. Gee says of it, that it 'partakes of that irregularity which attends most of the points which go to make up the history of scarlet fever.' ('*Reynolds*,' vol. i. p. 153).

Barthez and Rilliet say 'The facts in our possession cannot give an exact solution, for it is impossible for us to determine with certainty the moment of infection.' (*Maladies des Enfants*, tom. iii. p. 206.) Vogel says, 'This period of time is not the same in all children; in most cases it lasts from six to eight days; important deviations from this ought to be received with great caution, inasmuch as during an epidemic it is rarely possible to fix the day of infection with absolute certainty.' (*Lehrbuch der Kinderkrankheiten*, p. 397.) As regards our author's third assumption, where, we ask, is the evidence upon which it is supported? and as regards the first assumption, why are we to believe that scarlatinal poison was absorbed at all, and where is the evidence proving communication between the sick house and the healthy house?

To ask one's assent to conclusions founded upon evidence of this sort is an insult to the human understanding.

The really valuable part of the paper is that which gives the cases illustrative of the duration of the incubation-period in measles and scarlatina; and of these, all that it is necessary to say is that they confirm previous observations.

ALEX. COLLIE, M.D.

MISCELLANY.

PROSCRIPTIONS OF MEDICAL MEN.—The German medical journals report, that the *Obzor*, a newspaper published at Agram in Croatia, has since June adopted the very singular and unnecessary course of adding to each announcement of a death the name of the medical practitioner who attended the deceased.

DIPSOMANIA.—Contrary to the usual opinion, which attributes to the inhabitants of the British Isles the greatest average of drunkenness, the *Ausland* states that this vice flourishes to the greatest extent in the United States and in Russia. The asylum provided by the State of New York to receive confirmed drunkards contains 800 inmates, who are classified as follows: 30 clergymen, 8 judges, 197 lawyers, 226 medical men, and 340 unclassified, but chiefly consisting of merchants, artisans, and business men.

SIR RANALD MARTIN.—By the death of Sir Ranald Martin, India loses one of her most valuable public servants. No one had done more to lay down the principles by which life and health may be preserved in that climate. As an early advocate of hill sanatoria, of improved barrack accommodation, of improved water-supply, and of army-sanitation, Sir Ranald Martin was able to lead the van in those great sanitary reforms which have been worth an army to this country, and have reduced the invaliding from India from its former excessive rates, to a rate not very greatly in excess of a European standard.

DESERTS AS HEALTH-RESORTS.—At a recent meeting of the Munich Academy of Science, Professor Zittel read a paper, detailing the results of observations made by him with regard to the air of the Lybian desert during the months of January, February, March and April, 1874, tending to prove that this desert contains a very much larger amount of ozone than that of the oases, or the Nile valley. The belief that the desert air is beneficial to invalids, especially those suffering from pulmonary complaints, is of ancient origin, and, in accordance with this idea, the Khan has recently decided to repair to Helnau, in the so-called Eastern, or Arabian, desert of Egypt.

THE OPIUM CROP.—This crop, according to the *Philadelphia Medical and Surgical Reporter*, now averages from 4,000 to 6,000 baskets or cases. Of this quantity the United States require above 2,000 cases. The price has risen lately, averaging 17. per pound. Fifteen years ago it averaged 15s. per pound. Owing to the late high prices, some persons at Smyrna have, during the last two years, adulterated the pure drug by mixing it with spurious matter, and passing it off as first quality. They succeeded in selling about 300 cases during the last two years; but, as the fraud has been discovered, the consequence has been that purchasers have been very careful from whom they obtain this drug. The crop for 1874, which is collected in May and June, has suffered considerably from the late severe frosts; consequently a short yield will also increase the value. In 1873 the stock existing in Smyrna was 1,500 baskets; in London, 700; and in the United States 600 baskets.

FOREIGN BODIES IN THE DIGESTIVE CANAL.—The incident of the *homme à la fourchette*, the man who swallowed a fork in Paris in April last, has inspired Dr. Mignon with the idea of collecting all records of similar cases. He has been able to find details of one hundred and sixty-three, and it would be difficult to imagine anything more astonishing than the catalogue (given in the *Union Médicale* for November 3) of the objects swallowed by either veritable lunatics, or what may be termed sane idiots. Amongst the very indigestible and uncomfortable items catalogued we find fifteen gold medals, hair rings innumerable, 175 francs, a shoe buckle, nine inches of a sword blade, very sharp scissors, eighty pins, a baby's bottle, the castor of a night-stool, an entire set of dominos (the size of which however is not stated), one hundred *louis d'or*, a flute four

inches long, a glass phial, thirty-five knives, a clay pipe, from fourteen to fifteen hundred pins, a bar of lead weighing a pound, a whetstone, and (in three instances) a table fork. But the most extraordinary of all these cases occurred in the instance of a convict who died at Brést in 1773, and on whose body a necropsy was performed. The stomach was completely displaced and occupied the left hypochondrium, the lumbar and iliac regions of the one side extending into the pelvis nearly as far as the foramen ovale; it contained fifty-two different objects, weighing altogether 1 lb. 10 ozs. Amongst them was a part of the hoop of a barrel, nineteen inches long and one wide. M. Mignon has classified these 163 cases into three categories. 1. Foreign bodies which passed through the whole extent of the digestive canal with scarcely any injurious results. 2. Foreign bodies which have passed through the whole extent of the digestive track, with more or less serious results, but ultimate recovery. 3. Foreign bodies, which have passed through the whole digestive track, causing serious disturbance and fatal results. 4. Cases in which the foreign body has not been passed. 5. Cases in which operations have been performed. It is a remarkable fact that the cases of death caused by the presence of foreign bodies in the digestive tubes are less numerous than might be expected. Out of the 163 cases, we only find ten deaths from this cause. To these must be added two deaths after operation, making altogether twelve, or 7.3 per cent. There appears, therefore, to be no great cause for the surgeon to be over anxious in these cases, but to remember that unless there should either be some complications in the general health or some special indication, it will be as well for him not to interfere, and above all things not to perform gastrotomy, save as a last resource. Of this last operation M. Mignon relates five cases; amongst them being those which Mr. Neal, in 1855, and Mr. Bell, in 1859, thought themselves obliged to perform, the one in order to extract a bar of lead ten inches long, and weighing a pound, the other to do the same with a bar of lead, nearly twelve inches long, and weighing more than nine ounces. In both these cases the symptoms were very serious, comprising violent pains in the stomach, twitchings along the vertebral column, sickness and general prostration. The foreign bodies could not be felt through the abdominal walls, but the surgeons decided on performing the operation, thinking that the sufferers had no chance of relief by expulsion *per anum*. The success of the operations was fortunately complete.

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The London Medical Record.

WEDNESDAY, DECEMBER 9, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BUCKNILL ON THE LAW OF MURDER, IN ITS MEDICAL ASPECTS.

Dr. Bucknill (at the Annual Conversazione at the West Riding Asylum) delivered an address on the law of murder, in its medical matters (*British Medical Journal*, November 28, 1874.)

A *résumé* of this address is almost impossible, as every word of it is so much to the point that it is worthy of being carefully studied not only by every alienist, but also by the profession and the public at large.

The materials collected by the Parliamentary Committee for a statute to amend the law of homicide, seem to contain the following matters of especial interest to members of our profession :—

1. The definition of murder and of manslaughter.
2. The difficulty of proving infanticide, and the proposed alteration of the law thereupon.
3. The responsibility of surgeons operating without consent.
4. The plea of insanity.

According to Mr. Fitzjames Stephen, Q.C., who, together with Baron Bramwell and Justice Blackburn, was examined by the committee, there appear to be three natural divisions of the subject of homicide.

1. (a) It is murder, if you intend to kill the person.

(b) It is murder, if you intend to do the person grievous bodily harm,

2. It is manslaughter, if you do not intend to do grievous but only ordinary bodily harm.

Dr. Bucknill says: This distinction between grievous bodily harm and ordinary bodily harm which is not grievous, is a question which is invariably left to the jury, and, as such, is one of common sense rather than of law, although it is obvious that it is also one in which common sense must frequently be in need of medical guidance.

3. The last kind of homicide is, when you do not take proper care or employ proper skill and cause death in that way.

It would appear that the old definition of murder, that it was killing with malice aforethought, is quite exploded and obsolete, so far as the forethinking or premeditation is concerned. The old terminology is now simply a handle for advocates, which they well know to be illegal, and a loophole for juries. Malice, or some other term implying bad intention, must be preserved; but the condition that it must be *pre-pense* or aforethought, already extinct in practice, ought also to be abolished, as misleading and mischievous in the phraseology of the law.

Constructive Malice.—In illustration of this point Dr. Bucknill quotes the case of the Fenians, who, intending to rescue Dasent and Kelly, fired shots at

the van in which they were being conveyed, and killed a policeman. The man Dasent was in one of the compartments of the van, and afterwards it was found that the shot had gone through that compartment and penetrated the wood and gone out at the other side, and if Dasent had been standing upright it would have gone into his head and killed him. There is no doubt that that would have been murder as the law stands; but it would have been difficult to persuade anyone that, in the popular sense of the word, the men had any malice towards the person killed, when they were risking their lives to rescue him. That is an instance of constructive malice which everyone would wish to preserve.

Killing in committing Felony is Murder.—Three boys were walking through the streets of Birmingham to pick pockets; an old gentleman, who was fat and weak, came walking along with a gold watch in his pocket. One of the boys gave him a slap to make him bend forward, and the poor old man did bend forward, and died by reason of that slap. As he bent forward, the boy pulled out the watch from his pocket and handed it to the second, and the second to the third. They were all tried and condemned to be hanged.

Murder without Intention to Kill.—This point is illustrated, says Dr. Bucknill, by Mr. Stephen by the Clerkenwell explosion case, in which a man named Barrett exploded a barrel of gunpowder against the wall of a prison, with the intention of making a breach in the wall through which the Fenian prisoner, Burke, might be rescued. The explosion killed a number of poor people outside the prison, against whom Barrett doubtless had no malice, and he was hanged for murder.

Year and Day Limit.—The rule of law is, that to constitute murder the death must have occurred within a year and a day of the act which caused it. Mr. Stephen says that this, in substance, is a rule of evidence, and a very rough kind of rule of evidence, adapted to an age when there was very little medical knowledge. Possibly this question is only likely to arise at rare intervals.

By a Drunken Man.—Mr. Stephen is asked, with reference to the insanity clauses of his bill, whether he would include delirium tremens in the diseases which would prevent a man from knowing the nature of an act, so as to render homicide not criminal. Dr. Bucknill remarks on this question, that, knowing somewhat more of delirium tremens than lawyers are supposed to do, we must allow that it is not a frequent cause of homicidal violence. But the delirium from drink, which commonly results in homicidal violence, is that which we recognise as *delirium à potu*, the really dangerous delirium from drink the lawyers do not appear to have recognised. Men who have suffered from blows or wounds on the head, or from sunstroke are, we know, peculiarly liable to this frantic kind of drunkenness, and often from small amounts of stimulants.

Murder without Injury to Person.—By this is meant such a case as the following. Suppose a man wants to murder his wife; and suppose that she is ill, and the doctor says to him, 'She is in a very critical state; she has gone to sleep, and, if she is suddenly disturbed, she will die, and you must keep her quiet.' He goes into the room, makes a noise, and wakes her up with a sudden start, and frightens her; and she does die according to his wish. It seems to Mr. Stephen that this act is as much murder as if he had cut her throat. It seems to Dr. Bucknill

that this was the weakest and most assailable point of Mr. Stephen's very able draft, and that it did more to prejudice the committee against the bill than anything else. It was carrying the idea of murder into the abstract, and would have been applicable to the case of a man breaking the heart of a girl, or bringing down the grey hairs of his father with sorrow to the grave.

Chloroform.—In reference to this, Mr. Stephen says, that he supposes that a *bonâ fide* operation upon a man when he was insensible, which caused his death, if done for the best, would not be now a criminal act.

If the man were conscious and sensible, and if people were to say, 'The best thing that can be done for that man, is to take his leg off,' and he says, 'I do not consent,' but nevertheless his leg is taken off and he dies, and the jury is of opinion that it is a beneficial operation—in such a case, Mr. Stephen says, he is sure he could not say off-hand whether that would be manslaughter or not.

Dr. Bucknill asks would it be a trespass to tie an artery, or to cut for strangulated hernia, which he has himself done under chloroform, notwithstanding the vehement refusal of the patient, *who was, however, not of sound mind.* (The italics are the reviewer's.) In answer to this, the writer of this *résumé* would suggest that the same rule would hold good as in the case of an unconscious patient.

Dr. Bucknill proceeds to relate another case. A man intending to commit suicide bought half an ounce of arsenic, as he supposed, and swallowed it, telling his wife what he had done. Medical aid was procured, and the supposed arsenic was forcibly removed by the stomach-pump; but the man died. On the inquest it was proved that the chemist, suspecting the intentions of his customer, had given him powdered gypsum instead of arsenic; and it was found that death had been caused by injury to the coats of the stomach produced by the tube of the pump.

Was the surgeon in this instance guilty of criminal homicide, or could the representatives of the dead man maintain an action of trespass?

It appears to the writer of this paper that, although the result may have been the same in both cases, the extent to which the surgeon was responsible was not the same.

The difference between the case of the patient dying from an operation, who protested against his leg being cut off, and the case of the suicidal one who died from the use of the stomach-pump, seems to lie in the objection made in each instance.

The patient objected in the first instance, because he wished to save his life; in the second, because he wished to lose it. Had the surgeon not used the stomach-pump in the second case, he would have been aiding and abetting the patient in his act of supposed suicide.

Infanticide.—The question, as discussed before the committee, divides itself into two parts: 1. The period at which an infant, being born or newly born, becomes a person, and taking its life becomes infanticide; 2. The condition, as to soundness or unsoundness, of the mind of a parturient woman.

The bill deals only with the first consideration; the importance of the continued connection with the body of the mother by means of the umbilical cord seems to be a most important point. In reference to this difficulty, Justice Blackburn says as follows. What I would do myself would be this: I would make it a substantive felony for the parent of a child,

either before, or at, or during, or immediately after the birth, to cause the child to be prevented from being born alive, or to die; when that was done intentionally, I would make it a substantive felony, to be punished severely. That would be met by the Infanticide Bill which I have had shown to me.

Dr. Bucknill says—The state of mind of puerperal women is dealt with by Mr. Stephen in a spirit of pitiful and indulgent humanity, which is not very common among criminal-law makers. Whether he goes too far or not, we mental physicians must leave to the more intimate knowledge of our obstetrical brethren. While, as men, we cannot fail to feel commiseration for the shame and terror of a parturient woman who is bringing forth a child without the sanction of the law, the church, or society; and, as physicians, we must recognise the profound nervous disturbance which the act of parturition very commonly occasions, we cannot shut our eyes to the fact that the destruction of a child by its parent is an act of deep moral depravity.

Dr. Bucknill goes on to say: If, however, I understand Mr. Stephen aright, his remarks do not apply to puerperal insanity strictly so called, but to the unhinged condition of mind, which is, with more or less truth, attributed to all puerperal women; and on this point, I think, we are in need of accurate medical data.

Short as this sketch of Dr. Bucknill's paper must necessarily be, it is hoped it may induce those who have not already studied it, to read it in full.

We trust that on some future occasion we shall welcome another paper on the plea of insanity, from the pen of our greatest English authority on psychological medicine. HENRY SUTHERLAND, M.D.

BRAUN-FERNWALD ON ENUCLEATION OF ENCYSTED UTERINE FIBROMA.

In the *Wiener Medicinische Wochenschrift* (September 26, and October 3 and 10, 1874) Professor C. Braun-Fernwald has published an account of several cases of uterine fibroma on which he has operated, and has given a concise history of the operation.

Interstitial fibroids of the uterus are not connected with the uterine walls by any firm union, but surrounded with a loose layer of cellular tissue, and are consequently capable of being shelled out of the capsule of the uterine parenchyma.

Velpeau recognised the possibility of enucleating fibroma; Amussat of Paris, in 1840, and Atlee of Philadelphia, in 1845, were, however, the first who carried it out with success.

Up to the time when the author first performed the operation, in July, 1873, there were known to him forty-six published cases of enucleation of large uterine fibroma, in thirty-eight of which recovery took place; in one, after induction of premature labour, in one before the birth of the child, in four a few days after the birth of the child, and in thirty-two at a time beyond the puerperal period. In ten cases the result was fatal. A short *résumé* of these cases is given, and the mode of extraction is mentioned in most instances.

Grimsdale (*Liverpool Medico-Chirurgical Journal*, January, 1857) after inducing abortion on account of hæmorrhage in the fourth month, removed a fibroma as large as a placenta from the posterior wall of the uterus. A pregnancy afterwards took place, and resulted in the delivery of a still-born child.

Yeld (*British Medical Journal*, January, 1871) extracted a dead foetus by the feet, and next removed, by a blunt hook, a fibroma nearly eight inches in circumference, before the expulsion of the placenta.

Senderling (*Philadelphia Medical and Surgical Reporter*, xx.) after the delivery of the child and placenta, on account of continued hæmorrhage, enucleated with his fingers a fibroid as large as an apple. The patient recovered.

Kiwisch (*Klinische Vorträge*, Band viii.) on account of continued hæmorrhage, cut off a sessile fibroid as large as a hen's egg, situated on the anterior wall, and enucleated it with his finger and scissors. Recovery followed.

Ramsay (*Edinburgh Medical Journal*, 1858) nearly succeeded on the fourth day after delivery in enucleating a sessile fibroma weighing two and a half pounds, and situated in the anterior wall. It was spontaneously thrown off on the sixteenth day; and the recovery followed.

Braxton Hicks (*Transactions of the Obstetrical Society of London*, 1871) divided the anterior wall of the vagina before the birth of a child, and removed a fibroid tumour growing from the front wall of the vagina, completely blocking up the pelvis, and preventing delivery. The result was good.

In the removal of fibroids unconnected with child-bed, Atlee advised the complete extirpation of the tumour; whereas Baker Brown was content with mutilating or mincing it up.

Sims (*Clinical Notes on Uterine Surgery*, London, 1866) operated four times, twice after Atlee's plan, and twice after Brown's, and lost a patient by each plan. He states that the operation should never be undertaken except when the patient's life is endangered from loss of blood. [This opinion he reiterates in his last pamphlet, noticed in the LONDON MEDICAL RECORD, September 2, 1874.—*Trans.*]

Retzius (*Neue Zeitschrift für Geburtskunde*, Band xxxi. 1851) in a case of fibroid containing calcareous concretions, bored into the tumour with a perforator in order to make it compressible, and to be able to incise the os; he drew it down by means of Davis's craniotomy forceps, enucleated it with the knife, and then reduced the uterus. With all this, he nevertheless obtained cure.

Langenbeck (*Deutsche Klinik*, no. 1, 1859) dilated the os for eight days with sponge-tents, then inserted a double hook into a sessile fibroma of the size of a hen's egg, situated on the posterior wall of the body and neck of the uterus, slit up the posterior wall with a long incision, and shelled out the tumour with the fingers and scissors. The patient recovered.

Baker Brown divided the operation into two parts. The first consisted in slitting up the cervix bilaterally with the metrotome, and plugging the incised cervix with oiled cotton-wool. The patient was then left for fourteen days, in order that the cut edges might heal, so as to obviate the danger of purulent absorption from the raw surfaces. In the second stage of the operation, he introduced his forefinger as high up as the internal os, then passed a pair of curved blunt-pointed scissors up to the tumour, pressed gently against the capsule, opened the blades, and withdrew a small portion of the tumour; oiled pledgets were then placed in the remains of the tumour, and the vagina was well plugged. He called the second operation 'gouging.' Out of fourteen operations he lost two patients. The latter half of the operation he did not always esteem necessary, as the incision alone frequently checked the hæmorrhage, and at times

arrested the further growth of the tumour, and even effected not only a diminution of the fibroid, but its complete disappearance.

Matthews Duncan (*Edinburgh Medical Journal*, February, 1867, and November, 1870) removed fibroids from the uterus successfully five times. In the first case he dilated the cervix with laminaria and sponge tents, then incised it, extracting a fibroma measuring two inches. In the second case he enucleated a fibroma three and a-half inches long, in the third one five inches long, and in the fifth case a fibroma reaching as high as the umbilicus. In this last instance incisions were made into the os, which was dilated to the extent of an inch, and the tumour was seized with two hooked forceps, drawn down and shelled out. After one hour, the part lying at the vulva could be fixed by a loop; and at the end of two hours, by the division of two strong bands of union, the whole tumour was detached.

Barnes enucleated an uterine fibroma successfully, in 1865 (*Obstetrical Transactions*, vols. v. and vii.).

Scott (*Edinburgh Medical Journal*, October, 1868) enucleated successfully a fibroma weighing two pounds, seven inches long, and twelve inches in circumference. The os, which was dilated to the size of a half-crown, was slit up; the tumour was first detached with the fingers and uterine sound, then one half was removed by the écraseur and the other by the hand.

Gusserow (*Monatschrift für Geburtkunde*, Band xxxii. 1868), removed from the anterior wall a sessile fibroma weighing 260 grammes (more than nine ounces); it was about four inches wide and two thick. The os was incised bilaterally; at the end of four days extraction of the tumour was attempted in vain; after another four days, the rents made by the forceps were dilated and the growth was in part turned out. It was only at the end of five more days that it was entirely removed by the scissors on account of gangrene.

J. Hall Davis (*Obstetrical Transactions*, vol. x. 1868) removed an anterolateral sessile tumour weighing eighteen ounces, and having an attachment from the cervix to the fundus on the right side. The fibroid was first detached as far as about half its height, and a piece weighing six and a-half ounces was removed by ligature. The other half was cut in several directions, and about three-and-a-half ounces were removed; the remainder was expelled spontaneously on the fourth day.

Whiteford, in 1870, successfully removed a fibroma seated in the anterior wall of the uterus, after dilatation of the cervix (*Edinburgh Medical Journal*, February, 1870).

Chrobak (*Wiener Mediz.-Chirurg. Rundschau*, 1871) removed from the fundus a sugar-loaf sessile fibroma nine inches long, and a little more than nine inches in circumference. The uterine sound entered about 3½ inches. Six incisions were made into the vaginal portion of the cervix; three days afterwards a platinum wire was looped over the growth, and on the next day a piece about the size of a fist was taken away by the wire being made red hot; this was followed by two severe hæmorrhages. No attempt appears to have been made at enucleation by the fingers. Three weeks afterwards a ligature was placed on the tumour close to the uterine walls, and on account of the ichorous discharge the tumour was completely cut through. On the second day and later on, the remainder of the growth was

lessened by the polypus-forceps. After recovery, the uterus only measured $2\frac{3}{4}$ inches.

Männel, of Dresden (*Prager Vierteljahrsschrift*, Band cxxii. 1871), removed a fibroid reaching up to the navel successfully, after repeated operations. The vaginal portion of the cervix was 0·8 inch long, and the orifice was small; the uterine cavity was about 5 inches long. By means of bilateral incisions of the cervix the finger could be introduced in June, 1870, and the capsule of the fibroma divided with Sims's hysterotome to the extent of 1·6 inches. Enucleation was abstained from. During September, October, and November oblique incisions were repeatedly made with the scissors, with fruitless attempts at enucleation. The os was about two inches wide, and the tumour could be encompassed to the height of two inches. In May, 1871, a portion weighing 107 grammes (rather more than $3\frac{1}{2}$ ounces) was cut off with the scissors, and removed with hooks. In September, 1871, again, 125 grammes were amputated. In all, 232 grammes (eight ounces) were taken away; a portion remained, which, in the succeeding two years, had increased in width, and caused menorrhagia.

In October, 1870, Männel enucleated a fibroma, weighing 490 grammes (about seventeen ounces) during one sitting, with good result.

Spiegelberg, in 1873, recommended extirpation in cases of irreducible encapsuled tumour, growing from the wall of the uterus into the vagina, partly or entirely filling the pelvis, and causing much distress by pressure. He operated unsuccessfully in three cases (*Archiv für Gynäkologie*, 1873, band v.).

Müller of Würzburg, in 1873, in four cases of large fibromyomatous tumours of the vagina, springing from the cervix, observed healing and diminution of the remainder of the fibromata from merely chopping off a portion without enucleating them.

Breslau (1865) and Spiegelberg (1873) have collected sixteen cases from literature and their own observation, where Cæsarean section had been performed for fibroma; in all instances, the result was fatal (Gensoul, Kilian, Thibault, Montgomery, Charles Waller, Lehmann, Faye, Pillore, Breslau, Legouvais, Huguier, Depaul, Stoltz, Spiegelberg).

For the elucidation of this most important question of enucleation of uterine fibroma, Dr. Braun-Fernwald relates six observations of his own in which complete restoration was attained.

The first patient was a widow, aged thirty-six. The whole of the pelvis, as far as the vestibulum, was filled with a firm smooth tumour, reaching above the inlet as high as the navel, measuring nine inches long by four inches. The part lying beneath the abdominal parietes was an equal segment of a sphere; and above this to the right side a small tumour, of the size of an orange, was perceptible; this was suspected of being the fundus and body of the uterus without any thickening of its walls. The hand introduced into the vagina could not reach as far as the greatest circumference of the tumour. The galvanic wire cautery was passed up about four inches, and a portion of that dimension cut off; a red heat was maintained for forty minutes, without once breaking the wire. The detached piece was then seized by the cephalotribe, squeezed, and divided in its oblique diameter with Siebold's scissors, along the anterior margin of the blades. The posterior quarter was first withdrawn by the cranioclast, and then the anterior one. The upper half of the fibroma was now fixed by the cranioclast, and for the most part

detached from its capsule, within the exception of a few thin bands, which were cut through by the wire cautery. The platinum wire was placed as high up as was possible. After the removal of the tumour, which weighed six Vienna pounds (seven and a half English), there remained in the left half of the cervix a piece of capsule of the size of a fist, which hung down like an empty purse. The uterus could not be entered through it, but as soon as the finger was passed outside it, the internal os could be reached, and the uterine sound introduced an inch and a half. The tumour consequently grew from the cervix and not from the body of the uterus. A glycerine plug was placed in the vagina, and changed twice daily. No fever of reaction occurred. At the end of four weeks the cervix was completely restored, and the vaginal portion normally formed. The whole uterus measured three inches long by one wide.

The second case happened in a woman, mother of twelve children. Her last pregnancy occurred eight months previously, and since then there had been a continuous bleeding. A fibroma of the size of an apple, and firm consistence, was found in the vagina; it diminished above and became softer. The vagina passed directly into the tumour. Bimanual exploration failed to discover the uterus. An inverted uterus, with an orange-sized fibroid, was diagnosed. A piece of the size of a walnut was cut off by the galvanic cautery. During the next ten days, the purulent discharge from the remaining myoma and its cedematous condition rapidly increased. The remainder of the fibroma was therefore removed by the galvanic cautery, without injury to the peritoneum. Thereupon spontaneous reduction of the inverted uterus took place. The cervix soon contracted, the body of the uterus remained about the size of a walnut, and there was no more hæmorrhage. The woman had a slight attack of pleurisy, but quite recovered.

The third case was in a sterile woman, aged forty-one. A large cystic myoma springing from the body of the anterior wall of the cervix and the vagina was diagnosed; it extended to the middle of the pelvis and about three inches above the inlet. The tumour was seized by Küchenmeister's forceps, and the galvanic loop passed round its greatest circumference. The portion of tumour removed was full of cysts of the size of a hazel-nut, containing clear grey gelatinous matter. Through the contractions of the uterus, a second part about the size of an apple was expelled into the vagina, and was removed. A further enucleation of the tumour was not attempted, on account of the proximity of the bladder. After a rest of eight days, a third portion of the tumour was detached by the galvanic wire and the finger, as far as the fundus uteri. There was some fever before the third operation, which immediately subsided, and the patient made a complete recovery.

The fourth case was in an unimpregnated woman, aged thirty-four. The tumour extended from the inlet to the umbilicus, about the size of a head, seven inches long, and was immovable. The os was 0·4 inch wide, with a sharp anterior lip and a blunt posterior one. The uterine sound passed five inches into the right side of the uterus. High rectal exploration discovered a fibroma arising from the posterior lip. With Jacquemier's decapitation-instrument, which was slightly bent, several cuts were made through the capsule, dividing it to the extent of about two inches in the cervix, and for one inch through the portion arising from the vagina. The

cervix was divided bilaterally, and with the fingers the tumour was separated from its capsule for about its lower half, and then seized with the cranioclast and compressed. Its extraction still being impossible from its great size, the cervix was further slit up with Heywood Smith's angular scissors, and by aid of Böer's fenestrated placental forceps, and a few turns of the instrument to the right, by which means the upper half was completely turned out; it was forthwith extracted. A cotton-wool plug dipped in glycerine was introduced into the vagina, and changed twice daily. She recovered without a single bad symptom, and went out perfectly well.

The fifth case was in a newly married woman, aged thirty-six. A tumour, of the dimensions of a child's head, was found protruding from the vagina. On reducing it, there escaped several pints of purulent secretion. A rectal examination showed a tumour filling up the whole of the pelvis and extending two inches above its brim. On its upper surface was attached a small body, about the size of an orange, the body of the uterus. The tumour had spontaneously burst through its capsule. The platinum wire-loop was passed over the tumour as high up as possible, and tightened until it had nearly cut through the pedicle, when the galvanic battery was applied, and the tumour was rapidly completely detached. It was extracted by the cranioclast, after having been reduced by compression. The cervix was about as large as a fist after its removal, but the internal os was not passable to the finger. The woman quite recovered without any febrile symptoms.

The sixth case was in a multipara, aged forty-nine. The tumour, which was about the size of a child's head, sprang from the cervix, dilated the external orifice, and extended beyond the upper third of the vagina. The fibroma was seized with Courty's hooked forceps, and the platinum wire-loop passed round its largest part and made red-hot. By this means its capsule was cut through, and a piece as large as an orange removed. The upper half was then detached with the finger from its capsule, and extracted with the cranioclast. The woman recovered.

In these six cases the tumours grew twice from the cervical wall and the body of the uterus, three times from the cervix and vagina, and once from the fundus of an inverted uterus. In all six instances Dr. Braun-Fernwald operated according to Atlee's advice. In four cases the tumour was removed at one sitting, once in two sittings, and once at three sittings. He calls this method extemporised (*extemporiserte*) enucleation. The galvanic cautery was employed five times, and Jacquemier's decapitation once, for opening the capsule. The cranioclast was used four times and the cephalotribe once for smashing up the tumour. The instruments used for the extraction of the foetus were in every case found quite sufficient. Preliminary dilatation of the cervix by laminaria or sponge-tents was not used. There was no hæmorrhage of any importance.

Professor Braun-Fernwald very fully reviews Dr. Marion Sims's latest mode of operating [detailed in the LONDON MEDICAL RECORD of September 2], but believes his plan of using the galvanic cautery very convenient and safe. He prefers Jacquemier's decapitator to the scissors for incising the capsule, as being more readily introducible through a narrow os. The glycerine tampon of cotton-wool was the only

medication he employed; it is used for the purpose of excluding the external air from the raw surface.

With his six cases and Marion Sims's eight, there are now sixty known cases with a mortality of 32 per cent.; recovery having taken place in forty-one. Since the experience of Péan and Köberle, and still later of Spiegelberg, in the successful removal of large interstitial and subperitoneal tumours by Cæsarean section, he thinks that the operation in future will become a recognised justifiable operation—an opinion held by Marion Sims.

W. C. GRIGG, M.D.

ANATOMY AND PHYSIOLOGY.

HERING ON SIMULTANEOUS LIGHT-CONTRAST.—In a recent communication to the Vienna Academy (*Sitzungsberichte*, no. 68) M. Hering discusses the subject. The following is an account of this investigation.

The action of simultaneous contrast may be had in a simple way, thus: A narrow strip of dark grey paper is held against a dark background, and a marked point of the strip is looked at; then a sheet of white paper is thrust between the strip and background, and the strip appears much darker than before; the white paper is then removed, and the strip seems immediately brighter again.

The spiritualistic explanation is, that we do not hold fast in our minds the first impression of the grey long enough to be able to recognise its identity with the second. Similarly, an ordinary man will appear big by the side of a dwarf, small by the side of a giant. We do not retain the man's size in memory sufficiently to be able to compare the later impression with the earlier.

This imperfect memory might be aided by changing the background very quickly; and the fact that the change of brightness is still observed seems to be against this explanation. But again, two phases may be produced together instead of successively. Two grey strips are cut about 0.16 inch wide, and their ends are connected with cross-strips, so that they shall be 0.48 inch apart; they are put on a dark ground, and a point midway between them is looked at. Then a sheet of white paper is pushed in with the edge always parallel to the strips, towards the point looked at. When it passes under one strip this darkens, and we may compare its brightness with that of the other still on the dark ground. The difference is here almost as striking as in the other case.

Accordingly, another explanation is sought. It is said that the comparison of the brightness of two images on the retina is more uncertain the further apart the two images are, and that the two strips appear different because the apparent brightness of each is judged according to the ground about it, not according to the other strip at a distance.

That this, too, is insufficient, is shown by the following experiment, based on the consideration that if the two parts of the retina corresponding to the two strips be differently excited, notwithstanding the same objective brightness in the strips, the 'after-images' must also be different.

Two strips are cut 0.12 to 0.16 inch long and 0.02 inch broad, and placed on a background half white half black, so that they are, on each side, parallel with the boundary line, and about 0.04 inch from it. A

point in the boundary line is looked at for half a minute to a minute. Then the eyes are shut and covered, and the after-image is observed. The bright part of the ground now appears the darker, the dark part the brighter; and the strips, too, show a different brightness, though they had an equal objective brightness; indeed, the difference in the after-image is greater than in the first image. Now the psychological explanation of this difference of after-images must be quite similar to that adduced for difference in the primary images; and it will be said, that the after-images of the strips seem different because they are on unlike grounds, the one on the previously more fatigued part of the retina, which is now therefore the darker, the other on the unfatigued part, which is now therefore the brighter.

But against this, there is first the fact, that the difference of brightness of the strips is greater in the after-image than in the first image; for a different brightness must, in both cases, only result from different brightness of the two halves of the ground; the greater this is, the greater must be that of the after-images (according to the psychological theory). If the difference of brightness of the strips, therefore, appear greater in the after-image, that of the grounds should be also greater; but this is not the case. It is soon evident that the increase or decrease of difference of brightness of the strips, in the after-image, does not go parallel to that of the two halves of the ground, but it is sometimes slower, and sometimes faster than this, and sometimes even in the opposite direction. It was repeatedly observed, that the difference of brightness of the strips in the after-image was, for a time, greater than that of the two ground-halves; that the brighter after-image of the strip appeared brighter than the bright ground-half, and the darker one darker than the dark ground-half. This cannot in any way be explained as a contrast phenomenon in the psychological sense. The paradoxical character of such a view may be seen from the above-cited example of an action of contrast. Suppose two men of equal size (the two similar states of excitation, or perceptions of the strips in the after image), and standing not far apart. Near one of them, suppose one or several giants (the brightness of the brighter ground-half); near the other, one or several dwarfs (the darkness of the darker ground-half). Under such circumstances, it is conceivable that the middle-sized man between the giants might appear somewhat smaller than the man of equal size between the dwarfs; but it is inconceivable that this apparent difference of size of the two ordinary men could be greater than the actual difference of size between the giants and the dwarfs themselves, and that so the ordinary man near the dwarfs could appear, in contrast with them, even bigger than the giants a short way off, and the ordinary man near the giants smaller than the dwarfs.

But any support of the psychological explanation is completely removed by the following fact. When the liveliness of the after-image has somewhat abated, there occurs a phase, in which the difference of brightness of the ground-halves quite disappears, but the after-images of the strips are quite distinct, and the one appears brighter, the other darker, than the surrounding homogeneous ground. Here the question is not one of action of contrast, because the condition of such action, viz., the different brightness of the ground, is no longer present.

We are brought to the conclusion, that in the first

image the objectively similar strips appear different, because the two corresponding parts of the retina are in different states of excitation. Simultaneous contrast rests on the fact that the sensation of light by a part of the retina depends not only on the illumination of the latter, but also on that of the rest of the retina. The grey strip appears darker on a white than on a black ground, because the excitability of the corresponding part of the retina is diminished by the simultaneous strong illumination of the surrounding portion.

The action of contrast decreases with the distance from that part of the retina from which the darkening is induced; as may be proved by the following experiment. Two strips of grey paper are placed on a dark ground, parallel to each other, and about one centimetre apart. Midway between them a mark is made. The eyes having been kept shut some time, this mark is looked at, and a white sheet is brought from the side towards one of the strips. This strip will forthwith seem distinctly darker than the other. Next the sheet is brought to the other side, and advanced towards the other slip; the latter will then look the darker.

The method of observing simultaneous contrast by means of after-images has this advantage, that the images are much purer than those of the open eye. In the after-image of a paper strip, e.g., we do not see the texture of the paper, nor its slight folds and creases, nor specks, nor fibres; in a word, we do not see a piece of paper standing out from its ground, but only a piece of the field of vision, which is illuminated differently from its ground.

MAYER ON THE PHYSIOLOGY OF AUDITION.—In no. 46, vol. viii. of the *American Journal of Science and Arts*, and also in the *Philosophical Magazine*, Mr. A. M. Mayer is publishing his 'Researches in Acoustics.' The fourth section of article 21 (in the *American Journal*) is occupied with *Deductions from these (acoustic) laws leading to new facts in the Physiology of Audition*, and therein he says that the immediate consideration of the laws he has established gives the most convincing confirmation of Helmholtz's ideas of the high differentiation in the dynamic constitution, or mechanism of the ear. The very fact of the ear's power to effect a sonorous analysis was shown by Helmholtz to be a proof of this; but our physiological law, susceptible of a mathematical expression, affords the most direct proof that one could desire of the existence in the ear of a highly differentiated mechanism, so differently affected in its different parts by sounds of a different pitch. Helmholtz, even from his restricted premises—which Mr. Mayer has enlarged—divined this, and says (*Tonempff.*, p. 215), 'As the difficulty of making a trill in the bass is the same on all musical instruments, and as it is evidently altogether independent of the mode of production of sound on each instrument, we have to conclude that we have here to do with a difficulty which resides in the ear itself. Here is a phenomenon which neatly proves that the vibrations of the mobile parts of the ear for bass sounds are not "damped" sufficiently, or quickly enough, to prevent two sounds to succeed each other so rapidly without blending.'

'This fact proves, besides, that there should be in the ear different parts which are set in vibration by sounds of different height, and which give the sensations of these sounds. Some may imagine that the mass of the vibratile elements of the ear, comprising

the tympanic membrane, the ossicles, and the internal ear, can vibrate, and that it is on this property of this mass that depends the impossibility of sonorous vibrations ceasing with the same rapidity in the ear. But this hypothesis does not suffice to explain the known facts.

'When, in fact, an elastic body enters into vibration under the influence of an exterior sound, it takes the number of vibrations of the latter; but, as soon as the exciting sound ceases, it vibrates with the number of vibrations which belong to it when vibrating freely. This fact, which is a consequence of theory, can be very neatly proved for tuning-forks by means of the vibration-microscope.

'Therefore, if the ear vibrate as an entire system, and be capable of prolonging notably its vibrations, this prolongation should depend on the number of its own free vibrations, which is altogether independent of the number of vibrations of the exterior sound, which excited the vibratory motion. It at once follows that it will be as difficult to trill among the high notes as among those of the bass, and, also, that the two sounds of the trill will blend, not with each other, but with a third sound belonging to the ear itself. We have already made known one of the sounds in the preceding chapter: it is the fa_6 (French notation.) In these circumstances, consequently, the result should be altogether different from that given us by the observation of the facts.' [In a note Mr. Mayer says that the fact to which Helmholtz refers is that the human ear is tuned by resonance, to the fa_6 , of 2,730 complete vibrations; so that the vibrations of this note, and of those near it, cause piercing sensations in our ears. If a short tube be adapted to the external auditory canal these disagreeable sensations disappear, as the canal can no longer resound to the above note; but the same piercing sensation will now reappear on sounding a lower note.] Madame E. Seiler, of Philadelphia, has shown that dogs are peculiarly sensitive to the acute *mi* of the violin. If we extend our law downward and upward, throughout the range of audible sounds, we have for forty vibrations per second a residual sensation lasting $\frac{1}{11}$ th of a second; while for 40,000 vibrations per second we have a residual sensation enduring only $\frac{1}{500}$ th of a second. If we apply the law to vibrations below forty per second, when they do not produce a continuous sound, but explosive sensations in the ear, we reach a remarkable result. Thus, the residual sensation, corresponding to thirty vibrations per second should remain in the ear $\frac{1}{10}$ th of a second, after the vibrations outside the ear have ceased; then we at once ask why it is, if the residual sensation lasts $\frac{1}{10}$ th of a second, that thirty beats or pulses per second do not blend? Do not three distinct impulses fall on the ear in each $\frac{1}{10}$ th of a second? For they follow one another at thirtieths of a second. This abrupt breaking down of the law can only be explained by the highly probable supposition that co-vibrating bodies in the ear, tuned to vibrations below forty per second, do not exist, and therefore, as there are no bodies in the inner ear to co-vibrate and keep up these oscillations, after the cause which would have set them in motion has ceased to exist, it follows that when the ear receives less than forty vibrations per second it can only vibrate *en masse*, and the duration of these oscillations of the ear, as a whole, is far too short to remain the $\frac{1}{30}$ th of a second. The last supposition as to the vibration of the ear as a mass may serve to explain why the higher notes—far beyond those used in the musical scale—produce

continuous sensations. For to those very high sounds we can hardly imagine corresponding tuned bodies; yet they produce continuous sensations. But may it not be imagined that the ear with them does also only vibrate as one mass, and that the duration of this vibration is sufficient to give continuous sensations from pulses following at the rate of several thousand per second? But for notes thus perceived, without the intervention of corresponding co-vibrating parts in the inner ear, differences of pitch should be difficult, even impossible, to distinguish, and this we find to be the case.

H. A. REEVES.

(To be continued.)

MARTINS ON THE COMPARATIVE OSTEOLOGY OF THE FORE LIMBS OF THE MONOTREMES.—M. Martins, well known for his researches into the torsion of the humerus, contributes a note to the last volume (xix.) of the *Annales des Sciences Naturelles, Zoologie*, 1874, upon the osteology of the fore limb of the ornithorhynchus and echidna as compared with the corresponding member in reptiles and birds, and in other mammals. The skeleton of some birds, e.g., a fowl or pheasant, must be placed by the side of that of an ornithorhynchus or echidna, in such wise that both are in the position of a flying bird, the sterna being in the same horizontal plane. The humerus of the monotreme being naturally directed horizontally, and perpendicularly to the vertebro-sternal plane, the corresponding bone of the bird is brought into the position assumed when the wing is depressed in flight; after which, the forearm is caused to make a right angle with the humerus, as is the case with that of the monotreme. The limbs of the animals being now in the same position, one can proceed to institute comparisons. It will first be remarked that the humerus of the monotreme is not twisted to 180° , or two right angles, as it is in other terrestrial and aquatic mammals. Owen has already remarked this degree of torsion, and estimates it at half a circumference. This is indicated in the two monotremes by the direction of the crest of torsion, which, starting from the epicondyle of the humerus, comes to terminate below the head of this bone, without having, as in the other mammals in which the amount of torsion of the bone is about 180° , twisted *en hélice*, the half of the thickness of the body of the humerus. The upper extremity of the humerus of the monotreme resembles that of the bird, not only in general shape, and in the direction of the axis of its neck, but in having an 'os humero-capsulare,' as Nitzsch discovered, articulated with it and the coracoid bone. At the inferior extremity of the bone all resemblance ceases.

With regard to the bones of the fore-arm in the monotremes two things will be remarked. 1. The radius and ulna do not cross one another, and the fore-arm consequently is not in a state of pronation, as in other mammals. 2. The ulna; parallel to the radius, lies on the outside, and not on the inner side and behind, as in other mammals. In the bird we remark the same peculiarities; the ulna, like its homotype the fibula, lying to the outside, while the radius, homologue of the tibia, is on the inner side. In other mammals, on the contrary, even when the forearm is not pronated, its two bones are not parallel, the superior extremity of the radius being on the outside, while the inferior is on the inner side. Further than this, in monotremes, as in birds, the fibula articulates with the femur; but the latter have not, as the monotremes, a peroneal apophysis which rises above the fibulo-femoral articu-

lation, nor a mobile tibial 'rotula,' representative of the bifid olecranon of the fore-limb. If the skeleton of some reptile, e.g., a lizard, be placed by the side of that of a monotreme, the same analogies will be found, for the humerus of the reptile, twisted to 90 degrees, bears a striking resemblance to that of a monotreme; but the fore-arm of the reptile being in a state of pronation, its two bones cross one another, the head of the ulna being within and behind, while that of the radius lies to the outer side and in front. Though the fore-arm of the bird has the greater resemblance to that of the monotreme, the manus of the latter has a greater likeness to that of the lizard, and more than this, to that of certain of the higher mammals, e.g., the manus of the amphibious ornithorhynchus to that of the otter, and the same member in the echidna to that of the fossorial mole. With regard to the scapula of the monotreme, though the spine seems to be wanting, M. Martins believes, with Cuvier, that it is fused with the front margin of the bone, for this terminates anteriorly in a true acromion, which articulates with the furcular bone. [If we are not mistaken, Mr. St. George Mivart has been led by myological evidence to the same conclusion. See his paper on *Echidna Hystrix* in the *Transactions of the Linnean Society*, vol. xxv.—*Rep.*] M. Martins believes, with Mr. Parker, that the shoulder-girdle, which has most in common with that of the monotreme, is the sternal apparatus of the ichthyosaurus. This is an important point for the evolutionist theory, as giving evidence of a common 'phylum' for reptiles, birds, and mammals.

The shoulder-girdle of the monotreme is finally discussed by Martins from the functional point of view. Seeing that of numerous mammals, which are fossorial, some, e.g., the mole, which seems to swim in the earth (*qui semble nager dans la terre*) have this apparatus reduced to a long episternal bone, and others have the clavicle either imperfectly ossified (e.g. the rabbit and armadillo) or do not retain the merest rudiment of this important bone (e.g., the badger and pangolin), while in an animal exclusively pelagic, such as the ichthyosaurus, the sternal apparatus is most complicated, it is evident that the complex shoulder-girdle of the monotreme has no functional purpose to serve, but must rather be regarded as an heirloom derived from an ancestral ichthyoid reptile.

J. C. GALTON.

RECENT PAPERS.

On the Elimination of the Chlorates in general, with new Experiments on the Mode of Elimination of Chlorate of Soda. By Dr. Rabuteau. (*Gazette Médicale de Paris*, nos. 46 and 48.)

The Blood and Glycæmia. By M. Claude Bernard. (*Revue Scientifique*, November 28, 1874.)

PATHOLOGY.

JEHN ON EXTENSIVE CAPILLARY EXTRAVASATION OF BRIGHT RED BLOOD INTO THE PULMONARY TISSUE OF THE INSANE.—Dr. Jehn (*Centralblatt für die Medicinischen Wissenschaften*, no. 22 refers to Nothels observations upon hæmorrhage into the lungs coincident with injury to the brain (*Journal of Anatomy and Physiology*, viii. 397), and cites five cases of his own (one case of melancholia one of mania, three of paralysis) where in the lungs extravasation of bright red blood, completely resembling arterial blood, were found. The patches

were sometimes distributed, and in one case the extravasation was almost total. The boundaries were irregular but sharp, the bronchi were free. Microscopically the alveoli were almost exclusively filled with red-blood corpuscles, no changes were to be observed in the vessels and pulmonary tissue. The pathological results in the nervous system were partly negative, partly old and fresh meningitic new formations, hæmorrhagic pachymeningitis, diffuse nodding of single gyri, in two cases apoplexy of the grey matter of a capillary nature. During life no manifestation of the lung-affection was exhibited. [See also the LONDON MEDICAL RECORD, no. 74, 1874, for a series of cases with remarks taken from the *Progrès Médical*.—*Rep.*]

WILLIAM STIRLING, D.Sc., M.B. (Edin.)

RIVERS ON RATTLESNAKE-POISON. — In *The Southern Medical Record*, September, 1874, Dr. S. M. Rivers relates several cases of snake-bite, in one of which death took place within three hours after the reception of the poison. He describes the effects of the poison as those of a narcotic sedative, consisting of an intense burning in the wound, extending over the body, even to the top of the head; vertigo, nausea, and vomiting, dimness of vision, irregular spasmodic action of the muscles; then delirium, relaxation, depression of the vital powers, and death by syncope. The only reliable remedy is powerful alcoholic stimulation in conjunction with ligatures above the wound, and suction by means of cups or the mouth directly over it.

RECENT PAPERS.

Hypertrophic Cervical Pachymeningitis. By M. Charcot. (*Progrès Médical*, nos. 39, 40, 41, 45.)

On the Origin of Cancer from Epithelial Structures. By Dr. V. Brigidì. (*Lo Sperimentale*, October, 1874.)

Diseases of the Kidneys. By M. Charcot. (*Progrès Médical*, November 21.)

Novel Specimens of Tuberculous Lesions in the Spinal Marrow. By Dr. H. Liouville. (*Progrès Médical*, November 21.)

Cardiac Weakness. By Dr. Ferrand. (*La France Médicale*, November 21.)

On Myelitis, according to recent French Researches. By M. E. Clement. (*Lyon Médical*, nos. 19, 20, 21 and 24.)

On the Part played by the Lower Organisms in Surgical Lesions. By Dr. Nepveu. (*Gazette Médicale de Paris*, November 21.)

MEDICINE.

ELIAS ON OBLITERATION OF THE VENA CAVA INFERIOR AND VENA PORTÆ BY AN ENORMOUS HYDATID CYST OF THE LIVER; ASCITES; PARACENTESIS; POST MORTEM EXAMINATION.—In the *Berliner Klinische Wochenschrift* for November 16, the following case is described by Dr. Carl Elias, of Breslau. E. G., aged forty-two, of independent means and healthy parentage, suffered at the age of twenty from a tertian ague for nearly eight months; from typhoid fever seven years later; and in the spring of 1866, from pains of a 'rheumatic' character in the left lumbar region. Soon afterwards his left leg swelled a good deal, but after six weeks, and the use of warm baths, it gradually decreased in size. In the autumn of the same year he noticed considerable enlargement of the cutaneous veins of the anterior part of the thorax, and soon afterwards felt a tumour in the left side (through the abdominal walls) just below the last rib. The abdomen enlarged and

became tense. Pricking pains set in, radiating from the region of the spleen, and so severe as often to deprive him of sleep. His general health became affected. The bowels were constipated, but his appetite was good. His condition when first seen was as follows. There was considerable emaciation. The skin and conjunctivæ were slightly jaundiced. The belly was swollen, cylindrical, and tense. The umbilicus protruded in a bullet-like form. The left side bulged out considerably. The lower extremities were much swollen. The circumference of the abdomen at the navel was $42\frac{1}{2}$ inches, at the xiphoid cartilage 46 inches. Inspection showed enormous development of the cutaneous veins of the thorax and abdomen, especially in the epigastric region, displaying the *caput Medusæ* in a way rarely seen. The veins were distended and tortuous, with a deep-blue tint, rendered still more striking by the yellow tinge of the skin. The most developed were the internal mammary and epigastric veins; the latter, just above the groin, had a thickness of three-eighths of an inch. Percussion on the right side showed dulness commencing at the third rib, in a line with the nipple; and this was demonstrable over the hepatic region, to within about $1\frac{1}{2}$ inch from Poupart's ligament; then there was a clear tone from intestine; and similar percussion-notes in the right axillary line. Over the sternum, dulness began at a level with the fourth rib. The percussion on the left side was normal to the third rib: here the cardiac dulness began. From this down to about two inches from Poupart's ligament there was dulness, and in a line with the left axilla it was much the same. Posteriorly, percussion was normal to the fifth rib on the right, and the sixth rib on the left side. Breathing was healthy at the apices. There were no signs of cardiac disease. The arteries were small, and their tension slight; the femoral artery was scarcely to be felt. There was much ascites. The patient had considerable dyspnoea, præcordial anxiety, and severe pains in the abdomen, with constipation and anorexia. The urine was scanty and slightly albuminous. Notwithstanding the tension of the abdominal parietes, a large tumour was clearly perceptible, the pressure of which on the great vessels had induced the exudation. To relieve dyspnoea, and clear up the diagnosis, Professor Fischer tapped and drew off nearly a gallon of clear serum. The tumour with its inequalities was now very evident—its history, size, character, and apparent connection with the liver, indicated a polycystic hydatid tumour of that organ, demanding operative interference. His breathing was much relieved by the operation; and sudden acute pains near the left shoulder were relieved by hypodermic use of morphia, after which he slept for several hours. In the evening he was very weak, collapse set in, and he died eighteen hours after the paracentesis.

The *post mortem* examination was made twenty-four hours afterwards by Dr. Waldeyer. The liver was found immensely enlarged, extending downwards to the ilium and above to the third rib, filling both sides of the abdomen, and projecting forwards. The apex of the heart was at the level of the third rib on the left—being pushed up by the tumour; the stomach and spleen lay on the left, pushed upwards. The lower side of the liver was occupied with a colossal cyst, reaching to the extent just described. This was divided into two by a thin partition, and each division was a large parent (mother) hydatid cyst, containing a quantity of clear fluid and nume-

rous scolices. The left cyst had a diameter of about eight inches; the right one of about fourteen inches. Both were nearly globular. They rested on the posterior abdominal wall and vertebral column; and the liver, which was flattened out, floated over them. The gall-bladder was somewhat flattened and distended, but the ducts were pervious. The hepaticoduodenal ligament was greatly flattened, and six inches long. The main trunk of the mesenteric vein was impervious, and its coats were thickened. The vena portæ for nearly two and a half inches was a mere flattened cord, scarcely distinguishable from the cyst. On both sides of this obliteration it was pervious, and admitted the index-finger. There were no thrombi in the tributaries of the mesenteric vein. Near the obliterated trunk of this vessel there was another vein of nearly equal calibre, close to the gall-bladder, composed of branches from the pancreas and stomach, and passing directly into the parenchyma of the liver. The thoracic part of the vena cava inferior was normal. The diaphragmatic veins were dilated; the hepatic partly flattened, partly impervious. The vena cava, from the diaphragm to the iliac veins, was perfectly obliterated. The left renal vein was in connection with veins of the anterior wall of the abdomen. Other anastomoses were recognised between the renal and diaphragmatic veins, and those of the posterior abdominal wall. The liver itself was slightly enlarged—particularly the right lobe—but flattened out.

In commenting on the case, Dr. Elias remarks that hydatid cysts are a very rare cause of obliteration of the large abdominal veins, vena cava, vena portæ, etc.; crural phlebitis, thromboses, caries of the spine, aneurism of the abdominal aorta, the presence of other tumours are the common causes. Ott reports a case of flattening and partial obstruction of the calibre of the vena cava by a hydatid cyst of the liver. The vein was, however, not completely blocked. Obliteration of the vena portæ itself is not very common, as shown by Stannius and Puchelt's researches. The symptoms in this case pointed clearly to obliteration of the vena cava in life, but there were no positive signs of the obliteration of the superior mesenteric vein. Bidder and Schmidt's experiments on animals showed this to be rapidly fatal, if sudden. More gradual compression, as by phlephlebitis, induces blood in the stools and in vomited matter, as shown by Schönlein and Frerichs, and by Botkin and Leyden. Gintrac, in his work on *Obliteration of the Vena Portæ*, has shown that there was previous cirrhosis in most of his cases. Frerichs dwells especially on the rapid re-accumulation of fluid after tapping; here there was no time for this to occur. There was no sugar in the fluid of this case. [Jaffé found this in Leyden's cases.] The large vessel accompanying the obliterated mesenteric vein in the case may have caused absence of characteristic symptoms. Rokitsky points out that the anastomoses of the vena portæ with the branches of the internal iliac vein, vena azygos, and vena azygos minor, carry on the collateral circulation. Knox injected air through the azygos veins, and it passed through the intercostal and lumbar veins into the cava. Reynaud mentions also the anastomoses of the epigastric and mammary veins, of the subcutaneous abdominal veins with the axillary, with the hepatic, phrenic, veins of the posterior part of pelvis, and even the spermatic, and those of the ureters in exceptional cases. In the case above, the renal veins also assisted. Boyer and Cruveilhier show

that sometimes abnormally free communication between the portal and abdominal veins is congenital. [The reporter has seen three such cases. In two of them, the widely dilated veins of the front of the abdomen and thorax attracted attention almost immediately after birth. In these cases there was nothing worse than the disfigurement.—*Rep.*]

W. BATHURST WOODMAN, M.D.

FREY ON A CASE OF SUBACUTE DIFFUSED SPINAL PARALYSIS.—This case of general spinal paralysis, which occurred in the clinique of Professor Kussmaul, is related by his assistant, Dr. Anton Frey, in the *Berliner Klinische Wochenschrift*, November 2 and 9, 1874. Dr. Frey designates it as probably subacute inflammation of the anterior grey matter of the spinal cord—*poliomyelitis anterior subacuta*. Caroline H., seventeen years of age, of a healthy family, with no hereditary tendency to nervous disorder, of average bodily and mental development, was admitted in the winter session of 1873-74. With the exception of occasional headaches, she passed through her period of schooling without any illness. In March, 1872, she had, without any known cause, suffered from functional impairment of vision of both eyes, so that she could scarcely see even near objects. This affection yielded in about a month, under the administration of Calabar bean. Menstruation occurred at the age of fifteen, at first regularly; then, since the age of sixteen it had recurred every three weeks. Her occupation consisted, during the summer months, in light field-work, and during the winter in needle-work, knitting, etc. In March, 1873, she began to experience weakness in the hands, so that she could not do her knitting and spinning as before. She suffered also at this time from headache and anomalous sensations, for which she had recourse to baths, from which she derived some slight benefit. In September, 1873, all these symptoms became so rapidly worse that she could no longer perform domestic work. The hands became clenched, and only towards evening could the fingers be extended. Extreme weakness of the arms followed until it became impossible for her to raise them. About the middle of the same month, the lower extremities also were so much enfeebled that she could no longer maintain the erect posture or rise from her seat. The integuments of both upper and lower extremities became blue and cold: the soles of the feet were bedewed with cold sweat. Soon afterwards the limbs suffered from formication, and movements of the head were attended with pain. The patient also experienced difficulty in moving the globe of the eye and the tongue. The functions, moreover, of respiration, digestion, defecation, and micturition were rather impaired, and some degree of fever was present. By the end of September the paralysis reached the point at which it remained for two months. During this period the patient noticed that her upper extremities were becoming wasted. She shortly afterwards came under the care of Dr. Schmidt, who applied electrical treatment. By January, 1874, the galvanism had so far improved her condition that she could with some effort walk a short distance, could stand, and could rise from her seat; her arms had become so much stronger that she was able to do common housework, but her fingers had not free enough action to enable her to do needle-work, knitting, etc. The hands were strikingly wasted, and the susceptibility to electrical stimulus

much diminished. The treatment, at this time, consisted of daily Faradisation of the paretic muscles, and galvanism applied to the spine. In about six weeks she had improved greatly as to all the symptoms, and complained only of pains in the legs, arm, and back. Her general appearance was healthy. In respiration she expired only about half the average quantity of air. This feebleness of respiration probably accounted for a certain slowness of speech that was noticeable. A deep curvature of the spine existed in the lumbar region. The arms hung loosely, and their posterior surfaces were cold and discoloured blue. Many of the muscles of the upper extremities were much wasted (these are given in detail, too long for quotation), and their functions were greatly impaired. Testing the muscles of the forearm and hand both by galvanism and by faradisation showed great loss of electrical excitability. Several of the interossei, both abductors of the thumbs, and the triceps brachialis were wholly unaffected by electricity, and the biceps much less so than usual. The lower extremities were fairly nourished, and manifested no marked functional deficiency, although the feet were spread apart and turned outwards in standing. The integuments below the knee were cold and blue-looking. The intestinal functions were normal and menstruation occurring regularly. Under the influence of galvanism the muscles of the back regained power. By the following July the patient had so far recovered as to be occupied all day in domestic work.

In the preceding case it is to be noticed that a young and apparently healthy female, without any known cause, became the subject of a progressive and extensive paresis; and that within six months the patient had so far recovered that she could resume her domestic employments. The diagnosis in this case is founded upon three principal points which Duchenne, in 1853, laid down as characteristic of subacute general spinal paralysis. 1. Debility, and progressive paralysis of the voluntary movements generally, attack first the upper, then the lower extremities. 2. From the first, there is diminution or loss of electrical excitability in the enfeebled limbs. 3. Atrophy and fatty degeneration of the affected muscles appear. When it is observed, furthermore, that the cases related by Duchenne ran their course in a few months and were characterised by the absence of febrile or visceral disturbance, or of affections of the senses, it will be seen that the above instance coincides with the diagnosis of Duchenne. So far as the material is at present in our possession for the formation of prognosis, this is unfavourable, the paralysis extending to muscles deriving their nervous influence from the medulla oblongata. Even where the muscles have recovered their use, their electrical excitability remains deteriorated. In searching through the literature of analogous cases, it is evident, Dr. Frey observes, that this case would have been by many observers wrongly classed as one of progressive muscular atrophy, and, in illustration he refers to a case by Dr. Lange (*Virchow's Jahresbericht*, 1871), and to one by Friedreich (*Obs. vi.* in his work on Muscular Atrophy). When the patient above referred to was received into the institution, the case was, in the first instance, regarded as one of progressive muscular atrophy. Here was seen a wide-spread paralysis with wasting of the muscles, especially of the upper extremities, and manifested more especially in the muscles of the hands. The sensorial and psychical attributes were unaffected. The

digestive functions and the action of the sphincters unimpaired. All the symptoms seemed to point to progressive muscular atrophy. A closer investigation, however, and further electrical testing of the affected muscles, excluded the idea of progressive atrophy. In this case, after a state of general debility, the muscles of the upper extremities and of the trunk were in a short time attacked *en masse* by atrophy—a course different from that of progressive muscular atrophy, in which the small muscles of the hand are first affected, then the muscles of the extremities and of the trunk gradually become implicated, the morbid process extending over a year or more. The behaviour of the muscles under galvanism and faradisation is very different in the two diseases. In 'subacute general anterior spinal paralysis,' we find, as with the paralytic affection of the muscles, a complete and rapid insusceptibility to the electrical stimulus, out of proportion to the amount of atrophy. The reverse holds good with progressive muscular atrophy, in which the muscles more slowly lose their electrical excitability. An important practical difference between the two affections is also to be seen in the fact that the disease in the one case gradually and certainly extends to the medulla oblongata, tending to death; whereas, in the other, the subacute anterior spinal general paralysis, the prognosis may be favourable.

With reference to the pathology of this malady, or its seat in the spinal cord, observations are insufficient to determine this point. The closest analogy, Dr. Frey holds, obtains between this and spinal paralysis of the adult, both with reference to its pathology and symptomatology; with, however, this difference, that the latter is an acute febrile disease, whereas the disease shown in the preceding case is essentially non-febrile. In spinal paralysis a complexity of symptoms is reached in a few days, that does not occur in the disease under consideration until after the lapse of many weeks. In many respects, also, this affection resembles the acute spinal paralysis of infancy, which, from the researches of Charcot, Joffroy, and others, have been shown pathologically to be an acute myelitis of the anterior cornua. Hence, for these forms of paralysis, Professor Kussmaul suggests the name of 'poliomyelitis anterior.'

W. B. KESTEVEN.

WILHELM ON A CASE OF EQUILATERAL FACIAL PARALYSIS, TRISMUS, AND EXOPHTHALMOS.—This case is communicated by Dr. Wilhelm to the *Allgemeine Wiener Medizinische Zeitung*, Nov. 3, 1874. The patient was a young woman, reduced by nursing and anæmic. When first seen, she had paralysis on the left side of the face only, with bilateral exophthalmos, and paralysis of the abducens oculi. The patient was treated with galvanism, and left the hospital after about four weeks. She, however, returned in a few days, having completely lost the ground she had gained. She was extremely thin, entirely anæmic, and with a pulse of 120.

The left naso-labial fold was completely immovable; the left eye was prominent and congested; the cornea was ulcerated. A depraved condition of the motor portion of the fifth nerve was also shown by loss of sensation and motion in the soft palate, paralysis of the lips, and lock-jaw. The voice sounded weak, and was somewhat nasal. Application of the continuous current was followed by contraction of the levator alæ naris et anguli oris, and of the buccinator.

Notwithstanding the use of galvanism, the patient died suddenly a few days afterwards.

At the *post mortem* examination, the following appearances were found in the brain. The dura mater was thickened, the arachnoid rather opaque; the brain was much congested and soft; in its ventricles were about three drachms of clear serum. In the fourth ventricle, more particularly in its left wall, was a dry, cheesy, yellow mass, about the size of a hazel-nut, with a rough uneven surface; this protruded into the ventricle. In the right side of the ventricle was another mass about the size of a pea. The examination sufficiently explains the facial paralysis; but the trismus is not thereby sufficiently accounted for. The explanation of it which seems most plausible is, that the lock-jaw was consequent on the hyperæmia and waste which took place in the course of the fifth nerve.

[It is to be regretted that there is in this case no report of microscopical examination, either of the tumour or of the adjacent parts.—*Rep.*]

W. KESTEVEN, JUN.

RECENT PAPERS.

- The Application of Cold Baths to the Treatment of Cerebral Rheumatism. By Dr. Raynaud. (*Journal de Thérapeutique*, November 25.)
 The Medicinal Properties of Silica in Cancer, Fibroid, Tumours, and Diabetes. By R. F. Batty, M.R.C.P. Ed. (*Edinburgh Medical Journal*, November, 1874.)
 On the Physical Exploration of the Lungs. By G. W. Balfour, M.D. (*Edinburgh Medical Journal*, November, 1874.)
 On the Forms of Disease included under the term Purpura Hæmorrhagica. By B. W. Richardson, M.D., F.R.S. (*Medical Times and Gazette*, November 28.)
 On the Inoculability of Pustules of Simplex or Typhoid Ecthyma. By Dr. Brochin. (*Gazette des Hôpitaux*, Nov. 21.)
 Studies on Variola in relation to Vascular Lesions. By Dr. Brouardel. (*Archives Générales de Médecine*, December, 1874.)
 Treatment of Pulmonary Phthisis. By Professor Béhier. (*Bulletin Général de Thérapeutique*, November 30.)
 On the Necessity of reducing the Quantity of Meat or other Azotised Aliments in the Regimen prescribed to Glycosuric Patients. By Professor Bouchardat. (*Bulletin Général de Thérapeutique*, November 30.)

SURGERY.

SARAZIN ON THE ANTISEPTIC OCCLUSION OF WOUNDS BY NORWEGIAN TAR.—In a recent note to the French Academy (*Comptes Rendus*, Nov. 16), M. Sarazin states that after experimenting with various dressings, he has found vegetable tar (Norwegian tar) an excellent topic for wounds. The granulations formed under its influence are small, firm, and good-looking; the pus is thick and of good quality. This forms an emulsion with a small quantity of tar, which colours it slightly, and imparts its odour to it. When the tar is applied to the wound, it causes a slight burning sensation, comparable to that caused by alcoholised water. The teguments may remain coated with tar for any length of time without injury.

Solutions of tar in water, rendered alkaline by soda, have no unpleasant action on wounds, and they cleanse and disinfect rapidly. M. Boulé, of Bourges, prepares such a solution, containing 10 per cent. of tar without excess of soda, and without causticity. This is very suitable for washing wounds, and may be used with advantage to replace carbolic acid.

A piece of meat coated with tar, and covered with

a layer of wadding about a finger thick, and with a bandage moderately tight, which was also coated with tar, could be preserved three months in summer. The same experiment without the tar resulted in very rapid putrefaction; in six days the meat was diffuent and putrid.

M. Sarazin's method of dressing wounds is as follows.

The wound is washed with an injecting syringe with water containing about a third of tar liquor; then it is coated with a layer of tar, extending to the neighbouring articulations, if on the limbs, and to five or six inches from the lips of the wound, if on the trunk. A layer of wadding about two fingers thick is placed over (and a little beyond) the parts covered with tar. Some light pieces of wadding are put between the lips of the wound. The layer of wadding is then pressed and held by a bandage wound moderately tight. Warm tar is then spread over the whole dressing, and over this is placed a sheet of wadding round which a band is wound and held by several straps. This last part is for protection.

When it is wished to remove the coverings after ten, twelve, fifteen, or twenty days, the protective shell is taken off, and the tarry band cut with scissors. The cotton underneath is slightly yellow; its under layer is adherent to the skin, and at the edge of the dressing, in the space of about an inch, one cannot uncover the surface of the epidermis on which the tar is dried. A little further on, the under layer is detached, drawing with it the superficial scales of the epidermis, which form with the tar a dark, supple, resistant membrane. Near the wound this membrane, already detached to an extent variable according to the amount of suppuration, forms a pouch in which is collected the pus, usually neutral or acid, rarely alkaline. The skin, literally cleaned, is slightly ruddy, and covered with a fine pliant epidermic layer. Such is the adherence of this membrane to the skin, that, if the precaution be not taken to shave all the hairy parts, it cannot be detached without tearing out with it all the hairs, which is extremely painful.

So long as this artificial membrane is not cut or torn, there is only a slight smell of tar. When the pouch containing the pus is detached, the tar smell is somewhat modified; it is more acid, more penetrating, and less agreeable, without being essentially changed; it cannot for a moment be compared, even after three weeks, to the horrible stench from some wadding dressings.

The wound has, in general, a very good appearance. The author sometimes met with exuberant fleshy pimples, which he repressed with nitrate of silver. In general he merely washes with the tar water before re-applying the dressing.

M. Sarazin allows the dressing to remain on an average fifteen days; in summer, twelve, or even ten days, and when the pus is very abundant. He renews the dressing whenever he sees brownish spots forming on the dependent parts of dressing. An odour *sui generis* is then produced, recalling that of pus in the pouch already described; the latter has been fretted in consequence of the weight and pressure of the contained pus, which has filtered through the cotton. Even then, the putrefaction is not at all comparable to that with ordinary dressings of wadding.

While removal need not be rare, it is not neces-

sary to prolong the use of the dressing with antiseptic occlusion till complete cicatrisation.

The author does not think cotton indispensable. He has also used the tow of flax and of hemp, and oakum. He has sometimes used carded cotton of the finest quality, and sometimes the coarsest; the results are about the same. Cotton-wadding of good quality is perhaps the most suitable; the pressure is softer and the dressing more easy to remove.

He mentions about a dozen cases of amputation, etc., which he has treated in the above way. He has lost none of them, and has had no unfavourable symptoms.

In conclusion, M. Sarazin remarks that antiseptic occlusion by his method does not exclude immediate union. He then applies to the sutures a layer of collodion, before coating the parts with tar; and as it is necessary to remove the bandage the third or fourth day to take out the pins or the suture points, he dispenses with the second coating of tar (which is then useless). The method is altogether simple and inexpensive.

LANGENBECK ON EXARTICULATION OF THE HIP-JOINT, WITH FORMATION OF A POSTERIOR FLAP.—This operation, described by Professor Langenbeck in the *Berliner Klinische Wochenschrift*, for November 16, 1874, was performed on a man twenty-eight years of age, for the removal of the thigh-bone, from which sprang a large soft sarcomatous growth, extending down to, but not involving the capsule of the knee-joint. The method adopted by Langenbeck was as follows. First, the femoral artery was tied beneath Poupart's ligament, the limb enveloped in the 'bloodless apparatus,' and a Lister's aortic compress applied. The patient was laid upon his back, with the thigh flexed, and the incision commenced above the trochanter major with its convexity directed downwards, over the entire posterior surface of the upper part of the thigh, and terminating at the border of the inner surface of the thigh and perineum, at the origin of the adductors. The flap was separated as far as the tuber ischii. Next, the thigh being extended, the extremities of the flap were united by an oblique incision, immediately below the Poupart's ligament, which readily opened the articulation. So far the operation was bloodless; but, after the limb was removed, and the aortic compress probably shifted, the pubic, gluteal, and several small vessels spouted, and were immediately tied with catgut ligatures. The flaps were then brought into exact apposition, and a drainage-tube placed in the wound. The patient made a good recovery in about six weeks, and could bear a wooden leg.

Disarticulation of the thigh-bone has, since the American and Franco-Prussian war, somewhat fallen into disrepute. In Langenbeck's civil practice the results are not bad, since in four cases in which the operation has been performed for osteomyelitis or tumour of the thigh-bone, three lived; and in his communication of eight cases of disarticulation for gunshot injury (Berlin, 1868-9), only one survived. The Americans consider 'shock' to be the cause of the great mortality, as influenced by the removal of one-fifth part of the body, or the division of the great mass of nerves. Langenbeck denies this cause of shock, since it would be equally the same in civil practice, and considers that the cause lies in the fact of the great loss of blood.

In the campaigns of 1864 and 1866 all these operations were performed too late, and all turned out unfavourably, as they did in the late war.

EDWARD BELLAMY.

RECENT PAPERS.

On the Treatment of a Case of Congenital Deformity of the Upper Lip. By Professor Dolbeau and Dr. Felizet. (*Bulletin Général de Thérapeutique*, November 30.)

A Case of Strangulated Hernia successfully treated by Pneumatic Aspiration. By Dr. Bramwell. (*Edinburgh Medical Journal*, December, 1874.)

PUBLIC HEALTH.

PROUST ON ANTHRACOSIS AMONG COPPER-WORKERS.—Dr. Proust recently brought forward this subject at the Académie de Médecine, in a treatise specially devoted to the study of this malady among moulders in copper or bronze.

The *Gazette Hebdomadaire*, in passing in review the work of previous observers of this malady, reminds us that accidents occasioned by the introduction of carbonic particles into the respiratory passages were referred to so long ago as 1813 by Pearson, in a paper read before the Royal Society of London: that in 1831 Gregory and Christison found in the lungs of a miner certain hollows or cavities, surrounded by a black substance, which they recognised to be coal. In 1837 Béhier found the same kind of lesions, proceeding from the same cause among workmen exposed to coally emanations. Later, in 1854, M. Tardieu devoted his special attention to anthracosis among workers or moulders in copper. Works upon the same subject were published by Kiembault, Bouillaud, Traube, Beaugrand, and others. The *Gazette Hebdomadaire* omits to notice Dr. Headlam Greenhow's important observations on the 'black-lung of miners.' Under the article 'Anthracosis' in the *Dictionnaire Encyclopédique des Sciences Médicales*, written by M. Dechambre, there is a complete history of this question, in which nearly all the works on this subject are summed up and criticised.

In Dr. Proust's recent treatise he proves primarily that the almost general substitution of fecula for coal-refuse will render less and less frequent this appearance of anthracosis among moulders in copper. It is, therefore, a disease which has a tendency to wear itself out, at least among artisans of that calling; but there are others, such as coal-heavers and miners, who must necessarily remain exposed to it.

As regards the manner in which the coally particles penetrate, M. Proust believes that it is effected solely by the alveoli or respiratory channels. The cells of the epithelium which line the alveoli, and the thin membrane which sustains them, are easily traversed by the particles of coal. These particles make their way into the conjunctive interalveolar tissue, where their accumulation speedily induces a conjunctive hyperplasia. The conjunctive tissue becomes softened, and cavities filled with a blackish pulp are formed in the pulmonary parenchyma. Most complete details of the progress, evolution, and symptomatology of this lesion, and the heart complaints which it engenders, will be found in the article 'Anthracosis,' to which we have already alluded.

At the last stage—at the time when the paren-

chyma thus forms for itself multifarious cavities—the disease puts on all the clinical appearances of pulmonary phthisis; at that stage only can it merit the name of carbonic or coal phthisis.

It is well known that it has been proposed to style by the name of 'professional phthises' a certain number of pulmonary complaints arising from the inhalation of various dusts or powders, observed more particularly among needle-makers, millstone-makers, stonecutters, carders, etc. For this denomination of phthisis, applicable only to the last period of the disease, M. Proust proposes to substitute that of 'pneumoconiosis,' introduced by Zenker. The disease in question might here take the name of anthracotic pneumoconiosis among moulders.

M. Proust promises to return to this question, and to speak especially of the clinical forms which the disease may assume. W. LOMAS, M.D.

OBSTETRICS AND GYNÆCOLOGY.

DEPAUL ON THE DIAGNOSIS AND TREATMENT OF PERITONEAL EXTRA-UTERINE PREGNANCY.—In the *Archives de Tocologie*, September, 1874, M. Depaul contributes an article on this subject. In four previous articles he has dilated more fully upon the signs and symptoms that diagnosticate this affection; and the various pathological conditions that exist with or without pregnancy, and certain isolated phenomena which complicate it at times. In spite, however, of the real difficulties arising from these pathological states, and in spite of the co-existence of isolated phenomena which occasionally complicate extra-uterine or uterine gestation, he believes that an almost certain diagnosis can be arrived at after the sixth month. In deciding, it is necessary to pass in review the particular conditions of the case; all are not equally favourable. Up to the end of the fourth or fifth months, the signs are those of uterine gestation; even if they differ in a few particulars, they are not incompatible with normal foetation, or are too slightly marked to attract attention. In the first place, it must be decided whether the woman is really pregnant. The foetal pulsations remove all doubt, and, later on, it gradually becomes apparent that the foetus is not *in utero*. The deviation of the cervix begins to be more and more marked, and its consistence is no longer in harmony with the period of gestation. The conformation of the tumour, which is by degrees drawn to one side of the abdominal cavity, does not present the usual appearance of a gravid uterus. The foetal parts are more superficial, and are surrounded with less liquor amnii. The head and breech often form two projections which stretch across the abdominal parietes, which are sensible to the sight or touch. The transverse diameter of the tumour is sometimes longer than the vertical. It is obliquely placed, and appears to be attached inferiorly to one or other of the iliac fossæ. The uterine souffle is relatively more rare than in normal pregnancy.

Nevertheless, all the above-named characters may be absent. The cyst may be ovoid, like the uterus; the liquor amnii may be as abundant as in the normal gravid uterus. In one case related by the writer in a previous article, there was dropsy of the amnion, which considerably increased the difficulties

of diagnosis; happily new symptoms showed themselves, which dissipated all doubts.

The foetus may live beyond the usual term of gestation, but as a rule it dies in the last two or three months. From whatever cause, the death of the child is shortly afterwards frequently signalled by symptoms which would lead to the belief that labour was near, but it does not occur. More or less acute pains arise in the abdomen and loins, often assuming the characters of expulsive pains.

It is incontestably true that the uterus often increases and takes part in the scene; there is a sanguineous discharge; the decidua, which is hypertrophied, is expelled in its entirety or in parts, as has been more than once proved by the microscope. M. Depaul is persuaded that this very commonly, if not constantly, occurs, though it has escaped the attention of most observers, from the *débris* being lost on the linen or mixed with clots. Occasionally the orifices of the uterus are half opened, so as to permit the introduction of the finger. In a case mentioned in a previous paper this was very marked. As a rule, however, the cervix presents an unusual position, and is reached with difficulty; and when felt, it does not correspond with the period of gestation. This peculiarity is one of the most important guides to diagnosis; should the cervix be very highly placed, and pushed either forwards or backwards, there should be no hesitation in introducing the hand into the vagina, to make out its exact condition, chloroforming the patient if requisite.

In the early stages, when all is uncertainty, the employment of the uterine sound is inapplicable; but later on, when the cessation of the action of the foetal heart shows the child to be dead, not much harm can accrue even if the pregnancy be intra-uterine. M. Tarnier prefers the finger; he gradually forces it into the cavity of the uterus, overcoming the resistance of the two orifices.

The kind of spurious labour mentioned above is of variable duration, and recurs one or more times. In the intervals the condition of the woman is far from being normal; there are fevers, rigors, and vomitings; the abdomen is painful in places. The pains have nothing in common with those which depend on uterine contraction; they are continuous, and are intensified by pressure of the hand; there is inflammation of the cyst, and they are the result of repeated peritonitis.

The breasts, which had exhibited the various degrees and modifications of pregnancy a few days after the death of the foetus, show signs of lactation; they swell, become hard, and milk escapes, sometimes in sufficient quantity to soil the articles of dress. The inflammatory symptoms which precede or generally follow very close upon the death of the child may be absent, but this is very rare. Sometimes, after having been repeated many times with a variable intensity, they subside, the general good health returning. The cyst remains more or less stationary a long time, gradually diminishing through absorption of the liquor amnii and mummification of the foetus, and may remain in the abdominal cavity without causing any mischief.

The writer relates a case to prove this, which happened in M. Guéniot's practice, where an extra-uterine pregnancy arrived at term, accompanied with symptoms simulating labour with inflammation of the cyst and death of the foetus, the woman making a complete recovery. Although there are several cases on record with a like termination, yet as a rule

the result is different, ending in the death of the woman, as in the following instance which came under the observation of M. Guéniot, where the pregnancy arrived at the full time, the foetus dying within ten days, and the mother at the end of the eleventh month of gestation. The cyst ruptured into the bowels, and the fluid was discharged *per anum* and by the mouth.

BIDDER ON A CASE OF HÆMATOMETRA IN UTERUS BICORNIS, WITH COMPLETE ABSENCE OF THE VAGINA; OPERATION; CURE.—Dr. A. Bidder, of Mannheim, describes this case in the *Berliner Klinische Wochenschrift* of November 16, 1874.

The patient was seventeen and a-half years old when seen; the family history was good, although she herself was slightly affected with rickets. At the age of sixteen and a-half she began to be every four weeks attacked with pains in the lower part of the abdomen, gradually increasing in intensity. At last in no position could she obtain relief, except when bent double. An examination of the genitals showed an entire absence of the vaginal orifice. From the orifice of the urethra to the posterior commissure was smooth, even mucous membrane with a shallow depression in the middle. With the finger introduced *per rectum*, the catheter in the bladder could be distinctly felt, only separated apparently by some loose cellular tissue. At the height of a little more than three inches from the anus an elastic body, in the site of the uterus, could be made out by conjoined examination; it was about the size of a man's fist, ovoid, elastic, and movable. No portion of the cervix could be felt. Of the diagnosis there could be no doubt; the difficulty was to open up a communication between the uterus and the closed vaginal orifice. The obliteration of the vagina was complete; was it, however, only by adhesion of the two surfaces as in union of the prepuce with the glans penis? or was it entirely absent? Cutting instruments were not applicable; blunt force alone could be used, and that, to be successful, must be in the direction of the axis of the pelvis, behind the urethral orifice.

The point of the forefinger was placed in the shallow depression; by working it backwards and forwards, and with a boring movement, it was possible gradually to separate the vaginal walls which had grown together. At places the finger slipped along easily, perhaps because the walls were here only adherent to one another.

There was slight hæmorrhage. At the depth of about three and a half inches the ovoid tumour was met with, and a space about 1·2 inches in diameter and projecting about four-fifths of an inch into this artificial vagina was opened out with the finger. There was no os to be found; at the most dependent part a hole was scratched with the finger nail, and a trocar was plunged in. What came away was thick, tenacious, coffee-brown liquid. The opening was enlarged with the finger. Care was taken not to press on or irritate the uterus for fear of stimulating it to contraction. The fluid was allowed to run away of its own accord. The vagina was syringed out with warm water. She made an excellent recovery, with only slight feverish symptoms on the eighth day. On account of an offensive mattery discharge, injections were employed for a few days. Menstruation took place without harm and in a moderate quantity.

Careful examination under chloroform was made, at a later date. The uterus was large, soft, and elastic; to the left and below the fundus was a thick prolonga-

tion about an inch and a half long, and half as broad, springing from the substance of the uterus, cylindrical in shape, and, in comparison with the rest of the uterus, hard; it was probably the other horn of an uterus bicornis; the supposition of an altered Fallopian tube or a neoplasm was not permissible. *Per rectum* no cervix could be made out, but from the inferior end of the uterus a small, cord-like nodular vagina. The finger could pass only about two centimètres up the vagina before it was arrested by a knotty structure; beyond this the uterine sound could be pushed as far as the shoulder. The finger, with force, could be passed about two-and-a-half centimètres further by tearing through the bands of connective tissue, it bled moderately. Laminaria-tents were attempted to be introduced to widen the upper part of the vagina. As far as the vagina was then dilated, an oiled tampon was inserted. On introducing the sound some weeks later, a quantity of offensive purulent fluid escaped, which for a time continued discharging. When last seen, at the end of nine months from the operation, the girl was quite well, and menstruated normally, and the vagina could now only admit the finger about half an inch; the sound, as formerly, passed readily. The uterus was as large as a goose's egg.

The author views this case as one worthy of notice, as a contribution to the causation of this affection, hæmatometra, which in this instance arose from a complete fusion and adhesion of the vagina along its whole length. Whether the projection from the side of the uterus was another horn, is not certain. In uterus bicornis (Veit, Virchow) one horn not unfrequently does not menstruate. The chief interest of this case is the successful creation of a vagina; unfortunately, the passage was not kept dilated with bougies, etc., and so soon contracted. The reason that the parts did not grow together again, arose, in the belief of Dr. Bidder, from the original firm adhesion being only an epithelial one; probably the remains of the epithelium grew again over the injured parts, forming a complete covering, permitting, however, contraction of the nodular connective tissue. The cause of the uterus remaining so large was not apparent. The author is under the conviction that the opening into the uterus was made opposite where the os should be, otherwise he thinks it would have grown together again. Finally, one does not always succeed in making a vagina by separating the fused parts. Lately, Professor Simon has proposed in these cases to dilate the urethra, and make a large opening between the uterus and bladder.

EBELL ON THREATENING SYMPTOMS FOLLOWING VAGINAL INJECTIONS.—In a paper read before the Society of Gynecology, in Berlin, on April 21, 1874 (*Berliner Klinische Wochenschrift*, September 21) Herr Ebell states that threatening symptoms (sudden pain, sickness, coldness of the extremities, faintness, etc.) similar to what is observed after catheterisation of the bladder or injections into the urethra, occur also after vaginal injections. Text-books do not regard it at all, and only few cases are related in journal-literature. These were given by him together with four instances that came under his own immediate observation. Of these four, three occurred in women with retroflexions, who had been confined six weeks, one year, and two years respectively. The fourth case happened in a woman with antelexion, who was delivered nine

months previously of an abortion, and had been treated two years before that with a sponge tent.

The medicated lotions were injected in each case by the women themselves by means of an enema-pump.

The symptoms passed off in every instance without further consequences. Concerning the etiology, the following features are to be regarded.

1. The women are very sensitive, and the too elevated or too reduced temperatures of the injections bear the blame.

2. Inflammatory collections in the neighbourhood of the uterus are irritated through stretching of the vagina (Voisin), or the diseased (carcinoma, Scanzoni) walls of the vagina become injured.

3. The fluid presses into the uterus, causing shock

4. There is such a thing as entry of air into the veins of the pregnant uterus (Olshausen, Depaul, Litzmann) or into a vaginal vein eroded by carcinoma (Stofella).

In the discussion that ensued, Dr. E. Martin stated that he believed that these phenomena, excepting under the above-mentioned quite exceptional circumstances, are not to be attributed to the vagina, but had to do with the entry of air or fluid into the uterus. He observed it once in a very anxious case, where from chronic fluor albus the uterus had got into a very relaxed condition. In this instance, most probably, a bent horn-tube was pushed up into the uterus. A second time he saw it after an injection in a pregnant woman, and death followed from entry of the air into the veins. The temperature of the injection was of importance. Bearing upon this point he had met with a case where a woman who had been confined fourteen days was seized with intense pain after each warm injection, whereas with water, at about 62.5° to 64.5° Fahr., no such pain was occasioned.

Herr Fasbender saw the above-described symptoms, with marked participation of the bladder, once after a vaginal injection in an antelexed sub-involute uterus, with the external os somewhat patent. Herr Ebell proposed to obviate the dangers suggested by Dr. E. Martin, by having only side openings to the vaginal tube of the irrigator.

W. C. GRIGG, M.D.

RECENT PAPERS.

- Puerperal Diseases. By M. Peter. (*La France Médicale*, November 21.)
 On Diseases of the Heart in Children. By M. Bouchut. (*Gazette des Hôpitaux*, November 17.)
 On the Precurrent and Concomitant Phenomena of the Lacteal Secretion. By Dr. Chantreuil. (*Gazette des Hôpitaux*, November 17.)
 On Ephemeral Paralysis in Children. By M. Jules Simon. (*Gazette des Hôpitaux*, October 27.)
 Simple Acute Pemphigus in New-Born Children. By Dr. Brochin. (*Gazette des Hôpitaux*, October 31.)
 The Application of the Actual Cautery to Gynecology. By J. Braxton Hicks, M.D., F.R.S. (*British Medical Journal*, November 28.)
 On the Treatment of Puerperal Fever by Alcohol. By Dr. Brochin. (*Gazette des Hôpitaux*, November 21.)
 On some Points connected with the Etiology and Treatment of Carunculae of the Urethra in the Female. By Dr. Routh. (*Obstetrical Journal*, December, 1874.)
 Improvement in the Intra-Uterine Treatment of Flexions. By Dr. Eklund, of Stockholm. (*Obstetrical Journal*, December, 1874.)

CORRESPONDENCE.

RARE FORM OF HERNIAL STRANGULATION.

(To the Editor of the LONDON MEDICAL RECORD.)

SIR,—In the 'RECORD' of December 2, in the department of Surgery, there is a notice of a rare form of hernial strangulation by Dr. Kapteyn. Dr. Kapteyn says that he has not been able to meet with similar cases in literature. Nearly thirty years ago I published what seems to me a similar case in the *Edinburgh Medical Journal*, I think for August 1845, with remarks in which some similar cases are referred to. The case and comments will be found reprinted in Clinical Cases illustrative of the Treatment of Hernia, at page 1,402 of my *Lectures on Surgery*.

JAMES SPENCE.

MISCELLANY.

DRUNKARDS AND DIPSOMANIACS.—In a work recently published, entitled *Alcoholism, its various Forms, etc.*, Dr. Magnan defines the difference between alcoholism and dipsomania. Dipsomania he states to be a form of instinctive monomania; whilst alcoholism is a poisoning. He quotes Trélat, who says that 'drunkards are men who get drunk when they get the chance of drinking. Dipsomaniacs are people suffering from disease, who get drunk whenever they get an attack of their peculiar disorder.'

TRICHINOSIS IN GERMANY.—The *Magdeburg Gazette* announces that in the town of Linden 56 persons died of trichinosis. None of the victims were more than thirty-two years of age. The *Gazette* protests against 'the neglect of the sanitary service which might have saved 56 persons from a death, the occurrence of which is easily rendered impossible by a proper inspection of the food sold to the public. From the large amount of attention now paid to the subject of parasites and parasitic diseases at the English veterinary college, it is clear that this duty of inspection ought to be performed by skilled members of the profession.'

LIFE AND DEATH IN PARIS AND LONDON.—The municipal statistics of Paris just published show that from a population of 1,851,792, there were born in 1873, 55,905 children, 28,244 boys and 27,661 girls, being an average of 153 births a day, and a proportion of thirty children to every 1,000 of the inhabitants. London, of which the population (3,400,761) is not double that of Paris, shows more than a double amount of births in the same year. There were 41,732 deaths in Paris in 1873, comprising 21,380 males, and 20,352 females, being an average of 114 deaths daily, and a proportion of 22.54 to every 1,000 of the inhabitants. Here again London contrasts favourably with Paris; the number of deaths registered in 1873 having been only 76,634 in a population of more than double the amount of that of Paris.

PROPOSED CERTIFICATES IN STATE MEDICINE AT CAMBRIDGE.—The Cambridge Board of Medical Studies have reported to the Vice-Chancellor that they are of opinion that it is expedient for the University to establish examinations and grant certificates of competency in so much of State Medicine as is comprised in the functions of the officers of health. The certificate given to successful candidates should testify only to their competent knowledge of what is required for the duties of an officer of health. The Board recommend the following for the subjects of examination.—1. Physic and Chemistry. The principles of chemistry and methods of analysis, with especial reference to analyses (microscopical as well as chemical) of air and water; the Laws of Heat, and the principles of Pneumatics, Hydrostatics, and Hydraulics, with special reference to ventilation, water supply, drainage, construc-

tion of dwellings, and sanitary engineering in general. 2. Laws relating to Public Health. 3. Sanitary Statistics. 4. Origin, Propagation, Pathology, and Prevention of Epidemic and Infectious Diseases; effects of overcrowding, vitiated air, impure water, and bad or insufficient food; unhealthy occupations, and the diseases to which they give rise; water supply, and the disposal of sewage and refuse; nuisances injurious to health; distribution of diseases within the United Kingdom, and effects of soil, season, and climate.

THE PREVENTION OF SEA-SICKNESS.—Dr. Giraldès has published, in the last number of the *Journal de Thérapeutique*, an account of the means by which he avoided sea-sickness during two passages to England and back. He was at Boulogne last June en route for London, when the weather was so rough that many intending passengers hesitated to cross the channel. Dr. Giraldès was informed by a colleague at Boulogne that American physicians used the syrup of chloral as a preventive of sea-sickness with successful results. He therefore obtained some syrup of chloral, put himself into a quiet corner, and took his syrup directly the vessel was in motion, when, although his fellow-passengers experienced the usual unpleasant consequences, he arrived at Folkestone without having suffered the least inconvenience. The same results were obtained on the return voyage; but he increased the amount of chloral. He had again occasion to cross the channel at the end of September, by the night boat from Calais to Dover, and thinking with reason that the sea would be rougher at that season than usual; he had a draught made up composed of chloral, 3 grammes (45 grains); distilled water, 50 grammes; gooseberry syrup, 60 grammes; and French essence of peppermint, 2 drops. He took half of the draught as the vessel left the harbour, and arrived at Dover without having suffered in the least from sea-sickness, whilst his companions were in the usual condition of prostrate misery. A very heavy sea was running. On his return from London on October 30, there was a high sea and much wind; he accordingly took the remaining portion of his draught, soon went to sleep, and only awoke on his arrival at Calais in the best possible condition. Dr. Giraldès remarks that he is, as a rule, affected by sea-sickness when he crosses the Channel, and that his two trials of chloral have convinced him of its efficacy as a preventive of that most disagreeable malady. He adds that he never goes down into the cabin, but makes himself as comfortable as circumstances will allow on deck.

NOTICE.

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Advertisements should be sent to the Office, 15 Waterloo Place, S. W., before Twelve o'clock on Tuesday morning.

The London Medical Record.

WEDNESDAY, DECEMBER 16, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON DISEASE OF THE MAMMARY AREOLA PRECEDING CANCER OF THE MAMMARY GLAND BY SIR JAMES PAGET F.R.S.*

I believe it has not yet been published that certain chronic affections of the skin of the nipple and areola are very often succeeded by the formation of scirrhus cancer in the mammary gland. I have seen about fifteen cases in which this has happened, and the events were in all of them so similar that one description may suffice.

The patients were all women, various in age from forty to sixty years or more years, having in common nothing remarkable but their disease. In all of them the disease began as an eruption on the nipple and areola. In the majority it had the appearance of a florid, intensely red, raw surface, very finely granular, as if nearly the whole thickness of the epidermis were removed; like the surface of very acute diffuse eczema, or like that of an acute balanitis. From such a surface, on the whole or greater part of the nipple and areola, there was always copious, clear, yellowish, viscid exudation. The sensations were commonly tingling, itching, and burning, but the malady was never attended by disturbance of the general health. I have not seen this form of eruption extend beyond the areola, and only once have I seen it pass into a deeper ulceration of the skin after the manner of a rodent ulcer.

In some of the cases the eruption has presented the characters of an ordinary chronic eczema, with minute vesications, succeeded by soft, moist, yellowish scabs or scales, and constant viscid exudation. In some it has been like psoriasis, dry, with a few white scales slowly desquamating; and in both these forms, especially in the psoriasis, I have seen the eruption spreading far beyond the areola in widening circles, or, with scattered blotches of redness, covering nearly the whole breast.

I am not aware that in any of the cases which I have seen the eruption was different from what may be described as long-persistent eczema, or psoriasis, or by some other name, in treatises on diseases of the skin; and I believe that such cases sometimes occur on the breast, and after many months' duration are cured, or pass by, and are not followed by any other disease. But it has happened that in every case which I have been able to watch, cancer of the mammary gland has followed within at the most two years, and usually within one year. The eruption has resisted all the treatment, both local and general, that has been used, and has continued even after the affected part of the skin has been involved in the cancerous disease.

The formation of cancer has not in any case taken

place first in the diseased part of the skin; it has always been in the substance of the mammary gland, beneath or not far from the diseased skin, and always with a clear interval of apparently healthy tissue.

In the cancers themselves, I have seen in these cases nothing peculiar. They have been various in form; some acute, some chronic, the majority following an average course, and all tending to the same end; recurring if removed, affecting lymph-glands and distant parts, showing nothing which might not be written in the ordinary history of cancer of the breast.

The single noteworthy fact found in all these cases is that which I have stated in the first sentence, and I think it deserves careful study. For the sequence of cancer after the chronic skin-disease is so frequent that it may be suspected of being a consequence, and must be always feared, and may be sometimes almost certainly foretold. I believe that a nearly similar sequence of events may be observed in other parts. I have seen a persistent 'rawness' of the glans penis, like a long-enduring balanitis, followed after more than a year's duration by cancer of the substance of the glans. A chronic soreness or irritation (of whatever kind) on the surface of the lower lip often long precedes cancer in its substance; and, with a frequency surpassing all other cases of the kind, the superficial syphilitic diseases of the tongue are followed, and not superseded, by cancers which do not always appear to commence in a diseased part of the tongue.

For an explanation of these cases it may be suggested that a superficial disease induces in the structures beneath it, in the course of many months, such degeneracy as makes them apt to become the seats of cancer; and that this is chiefly likely to be observed in the cases of those structures which appear to be, naturally, most liable to cancer, as the mammary gland, the tongue, and the lower lip. One may suspect that similar surface-irritation has much to do with the frequency of cancer of the rectum, pylorus, and ileo-cæcal valve, in any of which parts the degeneracy, which might come naturally in old age, and make them apt for cancer, may be hastened and made prematurely sufficient by an adjacent disturbance of nutrition.

In practice, the question must be sometimes raised whether a part through whose disease or degeneracy cancer is very likely to be induced should not be removed. In the member of a family in which cancer has frequently occurred, and who is at or beyond middle age, the risk is certainly very great that such an eruption on the areola as I have described will be followed within a year or two by cancer of the breast. Should not, then, the whole diseased portion of skin be destroyed or removed as soon as it appears incurable by milder means? I have had this done in two cases, but, I think, too late. Or, again, when one with a marked family-liability to cancer has syphilitic disease of the mucous membrane of the tongue, with frequent recurrences of inflammation, should not all the worst pieces of the membrane be removed? I should certainly advise it, especially if the membrane were ichthyotic, if it were not that the disease is commonly so extensive that good scar-tissue would not be likely to be formed, and that bad scar-tissue, often irritable and ulcerating, is as likely to induce cancer as the syphilitic or ichthyotic patches would have been.

* *St. Bartholomew's Hospital Reports*, vol. x. pp. 87-89.

PICCININI ON THE SUCCESS OF SUBCUTANEOUS SYMPHYSEOTOMY IN CONTRACTED PELVIS.

Dr. Piccinini, of Cassano Magnago, Lombardy, writes in the *Lyon Médical*, October 25, 1874, as follows. Though symphyseotomy was born in France, it was soon abandoned there, and if modern text-books give it a place among obstetrical operations, it is only on account of its historical interest.

Professor Pietro d'Erchia (of Naples) attributes the rejection of this operation to three causes. The first is the accepted custom in France and England of always sacrificing the child for the safety of the mother; the next is the invention of Baudelocque's cephalotribe, which is superior to the hook of the English practitioners; and, lastly, the prevalence of induced premature labour, which permits us to avoid the disagreeable consequences of a pregnancy, by arresting it at any given moment.

It appears to me that, beside the causes mentioned by D'Erchia, there is another of greater importance; namely, the want of a definite rule to decide for the surgeon how much pelvic contraction indicates, and how much forbids, symphyseotomy, followed by the immediate application of the forceps. This is what has induced me to publish the ideas which guided me in this operation, which I performed with perfect success in May, 1870, saving both mother and child.

Symphyseotomy, in cases where the contraction had reached two inches and a half (about sixty-five millimètres), had given such bad results that it was soon abandoned. It was, therefore, important to fix precisely the degree of narrowing which permitted the operation, the moment at which it was indicated, and the immediate and subsequent precautions which should insure its success.

Symphyseotomy, that is the section of a fibro-cartilage, is, in itself, an equally harmless and simple operation. Joulin alleges that it is impossible, beforehand, to determine with perfect accuracy the amount of contraction and the volume of the foetal head, so that it might be necessary to follow the first operation with a second, to wit, the application of the forceps, and that this would add greatly to the danger of the former, and would be liable, according to him, to rupture the sacro-iliac ligaments. I do not hesitate to treat such allegations as absurd.

In the first place it is rare for a practitioner, with the many accurate instruments we now possess, to fail to determine exactly the amount of contraction. There is no reason to fear the application of the forceps, which, according to me, should follow every symphyseotomy, and I never have had occasion to deplore the accidents to which Joulin alludes. I pre-suppose, of course, that the forceps are applied by a skilful accoucheur. According to Joulin, symphyseotomy will permit the separation of the articular surfaces to the extent of from one inch to one inch and a half which he holds corresponds to merely one centimètre's increase of the antero-posterior diameter. Experience shows that this is not the case. Professor d'Erchia has performed symphyseotomy in a case of contraction to two and one-half inches (sixty-five millimètres), and according to me it should not be done where there is less than three inches (eighty millimètres) and with the forceps he delivered a living child immediately afterward. The mother survived this application of the forceps, which, according to Joulin, should cause death by tearing the sacro-iliac ligaments.

As for me, the results of my practice are sufficient data; the amount of space permitting the operation is from three to three and a half inches; after the operation, the forceps should be applied with care, and, by gentle traction and slight rotary movements, the child will be gradually delivered without further pain to the mother, or any traumatic complication. With a contraction to three inches, symphyseotomy will give an additional half inch, and the forceps as much more, making the antero-posterior diameter practically four inches, which is, certainly, a most satisfactory result.

Position of the Patient.—The woman should lie on her back, on a strongly inclined plane, the pelvis supported by a pretty hard cushion, and the head being the lowest part. It is clear that by this position the head of the foetus is prevented from pressing on the pubes, and the operation is thus facilitated.

Preparatory Catheterisation.—It is indispensable that the bladder should be empty during the operation; apart from the gain in the antero-posterior diameter, the bladder will be less exposed to injury from the instruments. It is well, after the evacuation of the urine, to depress the bladder with the point of the catheter, or, better still, to put it on one side, lest it should be caught under the arch of the pubes during delivery.

The Section of the Fibro-cartilage is to be performed by the subcutaneous method, according to the usual rules. The fold of skin may be made above the clitoris, and the best instrument is a slightly curved tenotomy knife, with a blade which must offer a certain amount of resistance.

A Bandage for the Body must be arranged beforehand, and, after the operation, moistened with a solution of gum, so as to make it immovable. Its object is to prevent any separation of the thighs, either by a movement of the patient, or by an accident on the part of those carrying her; indeed, she should not be moved till it is nearly dry. By the subcutaneous method, the suppuration is avoided which would otherwise increase the dangers. Another advantage is the suppression of sutures; for the soft parts, which by this method are spared, contribute greatly to holding the pubic surfaces in place.

To recapitulate, the conclusions of this paper are the following.

1. Never perform symphyseotomy when the pelvis is contracted to less than three or three and one-half inches (80 to 95 millimètres);
2. Operate by the subcutaneous method;
3. After section of the cartilage, apply the forceps;
4. The position of the patient, the previous catheterisation, the immovable bandage are details of great importance to the success of the operation.

To conclude, let me recall the statistics of symphyseotomy during five years at the hospital at Naples: operations, nineteen; women saved, fifteen; children saved, sixteen.

TOWNSEND ON SMALL-POX AND CHOLERA IN CENTRAL INDIA.*

On the character of the monsoon, whether it be long or short, whether the rainfall be scanty or abundant, mainly depend not only the supply of

* *Annual Report of the Sanitary Commissioner for the Central Provinces for 1873. Nagpur, 1874.*

food, but the prevalence and intensity of cholera, small-pox, fever, and bowel-complaints, the diseases which cause the greatest mortality. Though the rule is subject to variations, a period of five years will generally include both the rise and fall of a wave of epidemic small-pox over a wide country. The mortality from small-pox is by no means an unvarying measure of the prevalence of the disease. The number of deaths in a given number of cases varies greatly in different localities, and there is every reason to believe, that small-pox is a far more fatal disease in the Punjab and in the North-West Provinces, than in Southern India. One cause of this is, the higher proportion which the town population bears to the country population in the two first-named provinces; and small-pox is most fatal in towns.

Climate and season also exercise an important influence. In some years either the epidemic influence, or the causes that render individuals susceptible to its effects, are stronger than in others. The prevalence of small-pox in India is almost confined to the hot and dry season, and there is evidence that the mortality from it is aggravated in seasons of unusual drought.

Epidemics of small-pox, in spreading over the Central Provinces, apparently take a general course from west to east. It is remarkable, nevertheless, how, in almost all quarters, the principal town has been affected before the disease has spread over the district to any extent.

A marked fall of the mortality from small-pox in May may be generally taken as a sign, that the epidemic has exhausted itself and is dying out; but if on the other hand the mortality be greater in June than in May, though it will fall as the rains set in in July, and remain at a minimum in August and September, yet it will again rise rapidly as soon as the dry weather sets in. A difference in the fatality of the disease in different localities has been observed, and also in different seasons in the same localities. Thus, in the year 1874, the ratio of deaths per cent. to cases treated, has varied from a maximum of 24.9 to a minimum of 11.2, and in the same place from 17.1 in 1873 to 23.9 in 1874.

On the whole, vaccination may have helped somewhat to diminish mortality, but with respect to populations only partially protected by vaccination, it is almost impossible to estimate, how far a lower mortality is attributable to vaccination, and how far to other causes, as, the stage of the epidemic, and local conditions. Attempts to enforce vaccination, or the isolation of cases, when small-pox is prevalent, certainly lead to concealment of cases, and the apparent but not real effect, of what is called the stamping-out system of vaccination, is due to this cause.

There was little cholera in the Central Provinces in 1873, but some remarkable instances of the curious way in which cholera attacks travellers are recorded.

Dr. Wilmot left Jubbulpore, on August 9, on a visit to Mr. Jardine at Allahabad, returning to Jubbulpore on the morning of the 13th. Early on the 14th he was seized with cholera, and died on the following morning. When Dr. Wilmot left Allahabad, Mr. Jardine left for Mirzapore; he too was seized with cholera at that place, and died about the same time as Dr. Wilmot. On the day when Dr. Wilmot had premonitory symptoms, he was accompanied in the visit of some schools by Mr. Rogers. That gentle-

man went on a tour of inspection in the Saugor district, where there had been and was no cholera, and returned on September 2 to Jubbulpore, where also there had been no cholera, and went to reside in the hotel, which was near Dr. Wilmot's house. He was seized on the 13th and died. Another inmate of the hotel died two days afterwards, and a few more cases occurred in the station at irregular intervals. Dr. Townsend remarks, that the most probable explanation of Mr. Rogers's seizure is, that the infection had remained attached during the interval, to the clothes that Mr. Rogers had worn when with Dr. Wilmot, or to a box of office records, which Dr. Wilmot had made over to him on the 14th.

[The foregoing is a summary of the most important features of Dr. Townsend's careful report. The history of these remarkable cases of cholera, like that of many similar ones, has unfortunately been made out very partially; for instance, we are not told whether there was cholera in Allahabad, or along the road. A wonderful change of opinion has taken place of late years, when the commissioner at the same time talks of epidemic waves of small-pox, and holds extreme views as to the possibility of cholera contagion attaching itself to clothes or documents.—*Rep.*]

J. MACPHERSON, M.D.

GOLTZ AND FRENSBERG ON THE FUNCTIONS OF THE LUMBAR PORTION OF THE SPINAL CORD OF THE DOG.

Eckhardt concluded from the fact that erection could be produced by electrical stimulation of different parts of the brain, that the centre for erection lay in the brain. F. Goltz and A. Frensborg (*Pflüger's Archiv*, vol. viii., and abstract in *Centralblatt für die Medicinischen Wissenschaften*, no. 41) show, however, that in dogs, several days after section of the spinal cord at the limit between its lumbar and thoracic portions, by certain stimulations of different peripheric portions of the body erections occur reflexly, and this very regularly. If, however, the lumbar spinal cord be destroyed, erection does not take place. Just as the activity of other reflex centres can be inhibited by strong stimulation of the central ends of sensory nerves, so also is that of the lumbar centre for erection. Of course, this centre can be inhibited as well as excited through fibres which pass to it from parts higher in the spinal cord or from the brain. Thus is to be explained the fact that, after peripheral stimulation, erection does not occur so promptly in intact animals as in those with divided thoracic spinal cord; and on the other hand, the observation of Eckhardt and others, that erection follows stimulation of certain parts of the brain, is also explained.

According to the authors, there is also present in the lumbar spinal cord a reflex centre for the evacuation of the urinary bladder. For, when in dogs the spinal cord is destroyed at the limit between its lumbar and thoracic portions, gentle tickling of certain peripheral parts of the body produces evacuation of the urine.

The authors also believe that, even in the waking state in man, originally the activity of the bladder is excited not by the will, but reflexly from the mucous membrane of the bladder, whereby the first drop of urine enters the urethra. The further evacuation, however, can be continued afterwards by stronger innervation of the constrictor partis membranaceæ

urethræ. This centre also stands in connection with the brain through inhibitory and exciting fibres.

By analogous experiments, the authors show that the sphincter ani can also be excited reflexly to peculiar rhythmical activity, whilst the rectum exhibits peristaltic movements; and that the centre for these reflex acts also lies in the lumbar spinal cord.

Goltz showed, ten years ago, that in the frog the spinal cord exerts an influence on the tone of the blood-vessels. Legallois observed the same fact in rabbits, though he explained it incorrectly. The authors confirm the observation on the dogs on which they had experimented, that, immediately after section of the spinal cord, the hind feet become warm, but several days later, after the wound of the operation had quite healed, gradually the former tone returns. According to the authors, this can only occur under the influence of one or more centres placed in the lower part of the spinal cord, which become paralysed immediately after the operation, but gradually again become active. If the lumbar spinal cord be now again injured, an increase of temperature in the hind feet is again observed. After complete destruction of the lumbar spinal cord, the circulation is so affected that the animal dies. In a supplement, the author adds the remarkable fact, that section of the sciatic nerve in a dog also produces, in the leg supplied by it, increase of temperature, even when the spinal cord is completely destroyed.

In another communication on 'The Dilating Nerves of Vessels,' Goltz and Frensborg (*Pflüger's Archiv*, vol. ix.) deduce from their experiments:

1. The existence of local nervous mechanisms placed at the periphery, which govern the tonus and which regulate to a certain extent the blood-circulation;
2. The presence of vaso-dilator nerves in the sciatic nerve, which can be set in activity, either by simple section alone, and then by electrical and chemical stimulation.

These facts lead Goltz to regard the increase of temperature which follows section or stimulation of the nerves or of the spinal cord, not as a passive, or produced by paralysis of the nerves, but as an active phenomena.

Drs. F. Putzeys and F. Tarchanoff, at Goltz's request, undertook to investigate this subject (*Centralblatt*, no. 41).

A. The first point these authors investigated was: In what relation does the condition of the vessels stand to the temperature of the paralysed limbs?

1. When one sciatic nerve is divided in the thigh in a dog, and the toes of both hind-feet are then cut off, it is seen at once that the current of blood which flows out from the paralysed side is very considerable, whilst that on the sound side is very weak or scarcely present. The same result was obtained on young ducks and frogs. The same result was obtained in a frog on division of the roots of the sciatic nerve as they come out of the spinal cord.

2. On stimulating the peripheral ends of the nerves in these animals, the phenomena are completely reversed; the current of blood stops on the paralysed side, and becomes very obvious in the other. Stimulation with common salt gave the same result. These phenomena might be explained by the muscular contraction and tetanus in consequence of stimulation, but the same phenomena were observed in curarised dogs and frogs; however, in the frog, complete standstill of the outflow of blood did not take place. Direct observation of the vessels immediately after

the operation showed in the duck widening of the vessels; the blood was redder than in the sound foot. Stimulation of the nerves of the paralysed side caused narrowing of the vessels of this side. Microscopic examination shows that stimulation of the sciatic nerve after its section, either in the thigh or in the pelvis, a narrowing of the arteries, which may even go on to complete occlusion of the vessels, takes place.

3. If the stimulation be continued for several minutes as under 2, the narrowing disappears, and is followed by widening, which the authors regard as a phenomenon of exhaustion.

On stimulation of a part of the nerve lying more peripherally, the contraction of the vessels can be observed again.

B. 1. Section of the nerve in a dog yielded, just as in Goltz's experiments, considerable increase of the temperature in the corresponding extremity. When, however, the peripheral end was stimulated in a curarised dog, they did not obtain an increase, but a diminution of the temperature, which did not go so far that the paralysed side became as cool as the sound one, but still was 1.5° to 2° C. (2.7° to 3.6° Fahr.). In a duck the sinking was 2.5° C. (4.5° Fahr.).

2. The temperature of the paralysed side in dogs was found after three weeks to be the same as the sound side (corroborating Goltz). The widening of the vessels corresponds to the increase of temperature, and*the narrowing to sinking of the same.

C. On dividing the sciatic nerve in a frog, and cutting off the toes of both hind-feet, the blood flows out in greater quantity from the vessels of the paralysed side. After ten days, if a new section of the webs be made, blood drops out from both feet in about the same quantity. When, however, the spinal cord is divided in the middle of the back, or its lower part destroyed, it is observed that very little or no blood flows out of the paralysed foot, whilst from the other it flows out richly. After several days, the difference between the two sides has almost disappeared.

If the section of the spinal cord be repeated in this way, that always several days elapse between the individual operations, then a new increase of outflow of blood is observed from the leg, which still stands in nervous connection with the central organ.

These experiments support those of Goltz, and prove that a complete accordance exists between the conditions of filling of the vessels and the heat of the corresponding part of the body, and that the gradual return of the temperature to the normal is the consequence of the restitution of the tonus.

The authors derive the following conclusions from their experiments.

1. The restitution of the tonus of the vessels, which have lost their connection with the automatic centres placed in the brain and spinal cord, cannot be otherwise explained, as Goltz has already suggested, than by the existence of local peripheral arrangements, perhaps of a nervous nature, which they are not disinclined to compare to those which occur in the intestines; the tonus will therefore, in the first instance, depend upon this local mechanism, and secondly, upon the centres in the spinal cord.

2. The sciatic nerve contains vaso-motor fibres.

3. It is not yet proved that it contains also vaso-dilator fibres (after the meaning of Goltz), nerves which, according to the above authors, are unnecessary for the explanation of the different phenomena.

4. Section of the nerves and spinal cord produces, without doubt, a stimulation, whose effect is very evanescent, and which is followed almost immediately by paralysis.

5. The widening of the vessels and the increase of the temperature, which are sometimes observed immediately after the stimulations, are the effects of over-stimulation.

6. It might also be added that the vaso-motor fibres, after their section, are in a state of latent irritation, which, in consequence of an energetic stimulation, make way for exhaustion.

One does not therefore require the aid of vaso-dilator nerves to explain the increase of temperature which is observed after stimulation of a divided nerve, or of repeated division of the same.

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ANATOMY AND PHYSIOLOGY.

ASP ON THE ANATOMY AND PHYSIOLOGY OF THE LIVER.—G. Asp (Ludwig's *Arbeiten*, vol. viii.), in his experiments on the secretion of bile, was led to make a histological examination of the liver of the rabbit, to ascertain why and how fluids excreted from the blood were divided between the lymphatics and bile-ducts.

The paper is divided into a histological and a physiological part.

1. Although it is well known that the nucleus of the hepatic cells is often double, still it is not a necessary part of these cells, and although, as is generally the case, it is present, it has not always the same appearance. The author has found that the nucleus may be absent from the hepatic cells, and has treated such a liver by all the methods at present known to histologists for this purpose, but has not been able to render a nucleus visible. This condition does not depend upon food having been previously withheld from the rabbit. Even in a piece of such a liver, which was placed for a long time in often changed 10 per cent. solution of common salt, no nucleus was observed. (The 10 per cent. solution of common salt is a very valuable isolating medium.)

The author also insists on the facility with which the hepatic cells are altered by pressure. Even under a pressure of 50 millimètres (2 inches) of mercury for injecting the portal vein, these cells assume the most varied and singular shapes.

With regard to the structure of the walls of the smaller bile-ducts, the author finds that, as long as the cylindrical epithelium is present, several layers of a striped tissue are visible between, by which, at regular intervals, numerous fusiform bodies are enclosed. The stripes and long axes of the spindles lie in the long axis of the ducts. These stripes disappear completely on boiling fine sections of the interlobular tissue in hydrochloric acid and alcohol (1 in 1,000). They thus conduct themselves differently from the middle layer of the small arteries, which is not affected by boiling in the alcohol and hydrochloric acid mixture. This fact supports the view that the stripes are composed of several layers of collagenous fibrillæ. The spindles have the appearance of nuclei. According to this view, the tissue surrounding the epithelium of the fine bile-ducts would belong to the layers of connective tissue (*Bindegewebshäuten*) which consist of fibrils and cells, so that the muscles which Heidenhain ascribes

to these ducts would be absent. Even if muscles are present they can only lie in the long axis of the ducts, for the spindle-shaped nuclei always run parallel to the duct. Asp recommends the injection of a 0.5 per cent. solution of chloride of palladium into the ductus communis choledochus, in order to obtain good preparations of the bile-ducts. The tissue is then placed for eight days in a concentrated solution of bichromate of potash. The cells are then easily brushed away, and the remaining stiff framework consists essentially of the interlobular tissue.

The bile-ducts, in penetrating into the lobule, lose at the same time their cylindrical epithelium and their striated investment, their walls being composed only of fusiform nucleated plates disposed in spirals. E. H. Weber has already shown that a solution of alkannine in turpentine penetrates into the interior of the cells, and the author has satisfied himself by the injections of gutta percha dissolved in alcohol, and afterwards by the non-passage of a watery solution of Berlin blue into the cells, that there is no rupture of the cells produced by the injections, and that therefore this passage of alkannine and gutta percha into these cells must take place by filtration. MacGillavry, as is known, injected intralobular perivascular spaces, both by injection of the lymphatics in the liver of a dog, and also by the 'puncture' (*Einstich*) method. Frey and Irminger confirmed the existence of these spaces for the liver of the rabbit. E. Hering, however, denied that these spaces were the origin of the lymphatics, and did not succeed in injecting them in the liver of the rabbit. Asp has succeeded in injecting them in the rabbit, by forcing serum for a long time into the vena portæ, under a pressure of 30 to 50 millimètres of mercury (1.2 to 2 inches).

2. Schmulewitsch, under Ludwig's direction, found that poisoning with curara slightly diminishes the secretion of bile. Asp corroborates this statement. From a series of experiments the author shows that a liver, from which the blood-current has been cut off for longer than ten minutes, can again form bile, when blood is admitted to it. If, however, blood be excluded for an hour or longer, then the secretion is only re-established in a very incomplete manner.

The condition of the secretion of bile was tested in a liver when the rapidity of the blood was diminished below the normal; first, by ligature of one branch of the vena portæ, whilst the corresponding branch of the hepatic artery remained open; secondly, by narrowing of the trunk of the vena portæ; and thirdly, by section of the spinal cord. The first of these methods was already employed by Schmulewitsch, who showed that the quantity of blood carried by the hepatic artery is sufficient for keeping up the secretion of bile, but this secretion by no means necessitates the properties of arterial blood, for it is known that the fluid flowing through the hepatic artery loses its bright red colour before it passes into the hepatic lobules, into the first capillary system. Closure or narrowing of the vena portæ and section of the spinal cord, diminished very materially the quantity of the biliary matter secreted. All these three conditions then diminish the secretion of bile. The injection into the jugular vein of a curarised rabbit of several quantities (30 to 40 centimètres) of a 0.75 per cent. solution of chloride of sodium, heated to 38° C. (100.4° Fahr.), did not exercise any notable influence on the biliary secretion. The quantity of solids in the bile, however, after

the injection of solution of common salt, showed a manifest diminution. These experiments, therefore, show that the blood can undergo very considerable changes in its composition without losing its bile-forming property.

The life of a rabbit could not be sustained by substitution of defibrinated dog's blood for its own blood. The cause of death the author believes to have been coagulations which were produced in the remainder of the rabbit's blood by the addition of that of the dog.

The author then attempted to establish a circulation of blood in a liver which had been excised from the body. This is a field which is likely to yield many new results; and already Professor Heger, of Brussels, under Ludwig's direction, has performed similar experiments on the excised lungs (*Artificial Circulation in Excised Organs*. P. Heger: Brussels, 1873). The liver of a rabbit was taken and kept at a temperature of 38° C. in an apparatus constructed for the purpose (we must refer to the original for details); and, as it was impossible to obtain the necessary amount of defibrinated rabbit's blood, the defibrinated blood of dogs, which had fasted for a considerable time, was employed and diluted with a solution of chloride of sodium, so that it could circulate in the vessels of the rabbit. This artificial circulation outside the body, and under as normal conditions as possible, was kept up for two to three hours, and a quantity of fluid, though a very small quantity, was obtained, which in all its properties, physiological and chemical, exactly resembled bile. The quantity obtained in the most favourable case was 0.5 centimètres, *i.e.* just as much as was obtained from the living liver in ten minutes with strong closure of the vena portæ. This bile is not derived from a store in the liver, for, if serum only be employed (at a pressure of 30 millimètres of mercury), bile is only excreted at the commencement; soon the liver secretes none at all, and if the pressure be much elevated (50 millimètres of mercury), the fluid excreted has not the properties of bile.

FLEISCHE ON THE LYMPH AND THE LYMPHATICS OF THE LIVER.—E. Fleische (*Berichte der Königl. Sächsischen Gesellschaft der Wissenschaften, Math.-Phys. Classe*, p. 42, 1874) says that if the lymphatics which proceed from the porta hepatis to the receptaculum chyli be exposed shortly after ligature of the ductus choledochus, it is observed that their usually colourless contents are tinged yellow. This formed the point of origin of the present investigation.

The supposition that the yellow colour exhibited by the liver-lymph was due to the admixture of bile, was confirmed by experiment. A few drops of the fluid gave distinctly with nitric acid Gmelin's reaction for the colouring matter of the bile. To ascertain whether it also contained the bile-acids, for special reasons (to be seen in the original) the lymph was not collected directly from the liver, but in a large curarised dog the ductus choledochus was ligatured through a small wound in the linea alba, and then the wound was sewn up. The thoracic duct was then exposed in the neck, and a cannula placed in it. In a few hours a sufficient quantity (100 to 200 cubic centimètres) of lymph was obtained. In about five hours afterwards, the dog was bled from both carotids. From this blood a completely clear serum was obtained by means of the centrifugal apparatus. The serum of the lymph

was also separated from the fibrinous clot which formed in it upon standing. The analyses showed that the lymph contained a considerable quantity of the bile-acids, whilst the blood did not contain a trace of them. The bile, therefore, when its natural outlets are occluded, passes into the lymphatics of the liver, and thence exclusively through the thoracic duct into the blood. If, in addition to the bile-duct, the thoracic duct be also ligatured, the bile does not pass at all into the blood, or only its traces.

The second part of the paper is devoted to the consideration of the question, what anatomical arrangement in the liver favours the passage of the bile into the lymphatics. In this part of the paper many new methods for the study of the structure of the liver are described.

1. All injections of the bile-ducts were made on the liver of the rabbit, before rigor mortis set in, and the pressure under which it was done was measured exactly. Alkarnin in turpentine was employed for the injection of the bile-ducts, and the red colouring matter, just as with Berlin blue, passed into the lymphatics. Many advantages over this mixture are offered by a filtered solution of asphalt in chloroform. For this mass, the pressure required is at least 30 millimètres (1.2 inch) of mercury. With this asphalt solution the author often succeeded in injecting from the bile-ducts not only the trunks of the lymphatics which run with the portal vein, but also the network which covers the diaphragm.

2. The author found that the lymph also leaves the liver by a channel other than those already known. In the connective tissue which binds together the strongest branches of the hepatic vein lie lymphatics, which empty their contents into those of the diaphragm.

3. The author then describes the connective tissue of the liver. For its preparations two methods were employed. A one per cent. solution of chloride of palladium was injected into the hepatic vein, and then the liver was hardened in bichromate of potash. The finest branches of the hepatic vein could then be easily isolated. The tissue forms a network composed of fibrillæ and enclosed cells; the meshes are about as long as they are broad. The smaller bundles of connective tissue cut the finer branches at right angles, so that the long axis of the meshes becomes increased. In the mesh-work of the larger fibres is a very fine network with exceedingly fine meshes. On this second network the hepatic cells sit fast. To obtain the very fine network which stretches from the adventitia of the hepatic vein, this vessel is washed out with a half per cent. solution of chloride of sodium, and then injected with a dilute solution of nitrate of silver. This preparation is treated similarly to the last, being first hardened, and then the hepatic cells are brushed away. The bile-ducts are then injected with a one per cent. solution of perosmic acid, under a pressure of 20 to 25 millimètres of mercury. Afterwards a watery solution of Berlin blue may be thrown into the bile-ducts, and the whole liver hardened in solution of bichromate of potash.

The very fine network of exceedingly delicate connective tissue which is brought into view by this process, seems to be a means of keeping the hepatic cells *in situ*. Its relation to the blood-capillaries has not been definitely made out.

From the perosmic acid preparations, the author believes that the bile-capillaries are by no means

mere furrows between the hepatic cells, but are independent structures with a proper wall. These bile-capillaries stand in no recognisable relation to the connective tissue.

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SURGERY.

LEICHTENSTERN ON DIAPHRAGMATIC HERNIA.

The following case is interesting, not only as having been recognised during life by the rational and physical signs, but from the fact of a man so seriously afflicted having been regarded as a malingerer, thus fully confirming the views enunciated in vol. ii. of the *London Hospital Reports*, pp. 257-270, and especially the propositions, 'that nearly all those who feign diseases or accidents are in some way or other in ill-health; or in other words, that a basis of truth underlies most attempts at malingering;' and that 'in all cases of doubt it is better to assume for the time that the patient's statements are true, than to run the risk of maltreating or neglecting a real case of disease.'

The details of this case of diaphragmatic hernia will be found in the *Deutsche Klinik*, no. 29, for 1873, and the *Berliner Klinische Wochenschrift*, nos. 40, 41, 43, and 44 (Oct. 5 and Nov. 2, 1874); and the case is illustrated with woodcuts, showing the varying outlines of tympanic percussion, and the condition of parts *post mortem*.

The patient, Joseph Saile, a peasant, aged fifty-nine, was admitted into the medical wards at Tübingen, February 22, 1873, with the diagnosis of 'malingerer.' He said he could not swallow, that his windpipe had been 'ruptured' in consequence of a throttling he had undergone, and that he had 'the itch.' There was no proof of any of these things. His garrulity, proclivity to tears, and the long string of ailments of which he complained, gave the impression that his mind was affected. His most definite complaint was, that he was often suddenly attacked with dyspnoea, especially after eating, or defecation, after active exertions, and sometimes when quite quiet, and without warning. Examination of the patient disclosed slight cyanosis of the lips and prominent parts of the face, a short neck, the sterno-cleido-mastoidei being very much developed. Respiration was quickened. Both sides of the chest, seen from the front, were symmetrical. The respiratory type was mixed, but specially supracostal. The bones of the thorax were large. The percussion-sound over the liver was normal. There was epigastric pulsation. The apex of the heart was neither to be felt nor seen. Cardiac dulness was almost absent. With the exception of emphysema, the percussion and auscultation sounds were normal, except just under the inferior angle of the left scapula, where also the thoracic wall seemed more prominent. The percussion-note here was strikingly resonant and hollow ('full tympanic,' 'paste-board box tone,' or '*son creux*' of authors). Here vesicular breathing was quite absent, and was replaced by a metallic high-pitched sound in both inspiration and expiration, particularly in the former. Metallic tinkling and metallic succussion sounds were heard; and when the hammer of the plessimeter was used along with the stethoscope, beautiful metallic percussion-tones were brought out, at the same level as the metallic breathing. Dr. Leichtenstern soon discovered that the limits of this hollow space were constantly vary-

ing, and that they were affected by swallowing, and somewhat by changes of position. Combined auscultation and percussion were of the greatest service in definitely mapping out the extent of this 'cavity,' which afterwards proved to be chiefly 'stomach.' [The author writes as if combined auscultation and percussion were a novelty. Without discussing the vexed question of priority, which, the reporter believes, is justly claimed by Dr. Camman, it may not be amiss to note that it is mentioned in a common text-book (Barth and Roger's *Traité pratique d'Auscultation*, 2nde édition, p. 679). as long ago as 1844, with references to the American Medical Journals of 1840.—*Rep.*] He recommends the ulnar border of the little finger for estimating tactile vocal fremitus.

On June 2, 1873, it was noted that 'the whole left axillary region, and from this forwards with a snout-like outline in the cardiac region, as far as the left edge of the sternum, and upwards as high as the third rib, gave metallic resonance by auscultatory percussion;' whilst on the same day in the evening, vesicular breathing had not returned, nor vocal fremitus either, and the metallic sounds were nowhere. Besides this, a continuance of percussion often varied the pitch of the tones in a most striking manner, forming a musical gamut, just as happens in percussing the stomach, or an India-rubber bag, from which air can escape (*Deutsche Klinik*, 1873, p. 266), or from a glass plunged at varying depths into water. The physical signs present may be summarised as follows. 1. On the left, from below the inferior angle of the scapula, there lay a smooth-walled cavity, or hollow. [Metallic tones on auscultatory percussion.] 2. The position of this cavity was constantly changing. 3. This cavity, in a brief space of time, often changed, not only its position, but its form and volume. [This is strikingly shown in the diagram.] 4. The absence of vesicular breathing and vocal fremitus, when the metallic sounds vanished, showed that the lung did not replace the hollow space, although the latter, either from being filled in some way, or from contraction or irregular behaviour of its walls, no longer gave metallic sounds. 5. On the other hand, it was shown that the cavity sometimes partially retreated from the chest-wall, for at its upper and lateral borders it was sometimes replaced by lung (judging from physical signs). 6. It could sometimes be shown by the movable line of dulness, in different positions of the body, that the cavity was filled with mobile contents, and these limits of dulness, etc., were extremely variable. 7. The varying tones elicited forced to the conclusions that there was either one cavity with walls of varying thickness, or two or more cavities of different size. 8. Most curious of all was the fact that there were sometimes two or more quite separate spots giving the metallic sounds [shown by dotted lines in the diagram]. The sounds were less clear than in pneumothorax, and almost limited to inspiration, except as regards percussion. In pneumothorax, when extensive, the expiratory sounds are often loudest. Besides the symptoms just mentioned, there were bubble, borborygmi, and other intestinal sounds frequently heard over the thorax, just as they are heard in listening to the abdomen—and succussion-sounds—all of which were extremely variable as to times, and localities. These symptoms, regarded in their entirety, led to the conclusion that a diaphragmatic hernia must exist in this patient. He

was under observation three whole sessions. Dr. Leichtenstern discusses other proposed explanations of these phenomena, and shows them to be untenable. Further analysis of the physical signs showed that : 1. The opening in the diaphragm must be posterior ; as in the majority of such cases ; 2. It was almost certain that the stomach formed a part of the hernia ; 3. It was almost certain that other parts of the intestinal canal sometimes formed portions of the thoracic contents. The physical signs at various dates are minutely recorded, as well as experiments with swallowing, blowing air into the stomach, stomach-pump used both ways, etc. The patient swallowed quickly, and often large pieces, so that he was thought to be voracious. Dr. Wilks (*Lancet*, 1858) and Dr. Fraser (*Lancet*, 1856) draw attention to the inordinate thirst of patients who have intrathoracic ectopia of the stomach. Insufflation of air and clysters gradually led to the conviction that the colon also formed a part of the hernia. This condition of affairs appeared to date from a fall from a cherry-tree in 1870.

The diagnosis of his condition being thus established, and no further change occurring, he was allowed to return home, to light employment, on January 10, 1874. On the evening of May 11 of this year, after drinking about three pints of beer, and eating five-farthings' worth of black bread, he was attacked with extreme dyspnoea. Laden with tools, he hurried home, along an uphill road. He was seen to stagger, as if drunken, and on reaching his house, fell lifeless 'and discoloured' on the floor.

The *post mortem* examination was made two days later (May 13). On laying open the front of the body, the diaphragm on the right side reached the level of the sixth rib. On the left side it was much lower, and concave downwards. The cæcum and colon were much distended with gas. The former was dragged about a hand-breadth upwards from the iliac fossa, which was occupied by small intestine. The liver was pushed back forcibly. From the hepatic flexure the transverse-colon took its course upwards and to the left, and entered the thorax to the right and anterior side of a round opening in the diaphragm ; the portion of colon returning from the thorax lay below and to the left of this, and quickly terminated in the sigmoid flexure. When the transverse mesocolon was divided, and the epiploic sac was opened, the duodenum, greatly on the stretch, could be seen coming out of the opening, just behind the colon, running almost vertically upwards, and continuous with the jejunum ; by this stretching of the duodenum, the pancreas was raised into an almost vertical position, and rather more than an inch of its head projected into the thorax. The left hypochondrium, like the right, was filled with small intestine, and one coil occupied the thorax behind the colon. The spleen was adherent to the under border of the diaphragm, close to the opening. Neither stomach nor omentum could be found in the abdomen. The œsophagus, after passing through its proper opening, turned forwards in a sort of blunt hook-like curvature, embracing the posterior median edge of the opening in the diaphragm, thus returning into the thorax. On examining the thorax, the left lung was found to occupy only the upper half of the left chest, as low as the fourth rib. Below this lay the stomach, with its greater curvature anteriorly, in apposition with the thoracic wall ; thus its anterior wall lay to the right, above and posteriorly, whilst its posterior

wall was on the left in front and underneath. Its fundus lay to the left behind, partly on the vertebral column, partly on the upper surface of the diaphragm, to the left of the opening in the latter. The pylorus lay behind the lower part of the body of the sternum. The stomach was doubled almost in two within the left chest, so that the cardiac and pyloric ends were brought close together. [This is clearly shown in the diagram.] It was enormously distended, and held, besides much gas, nearly three pints of a brownish fluid with very large pieces of bread. The greater curvature measured thirty inches : and nearly two and a half inches of duodenum, ten and three-quarter inches of colon, with eleven inches of small intestine, and fatty omentum, flattened into a lump, occupied the left chest. The opening in the diaphragm lay partly in the muscular, partly in the tendinous portion, just in front of the œsophageal opening, severed from it by about one inch. It was quite round, with smooth, shiny, thick edges, as if corded ; there were one or two fatty fringes. Its diameter was three and a half inches, its circumference ten inches nearly. A medium-sized hand could be passed through it. There were no adhesions. All the dislocated parts could be easily returned into the abdomen. Even the left lung, though compressed, was free. The heart was firmly contracted in all its cavities, and quite empty of blood. [? Effect of agony.—*Rep.*]

The cause of death was apparently the enormous distension of the stomach, etc., hindering not only respiration, but circulation also, as shown by the heart and great vessels. [On this condition of heart reference is made to Sennert, on a case of hernia diaphragmatica, *Pract.* lib. ii. pars ii. cap. xv. ; also to Hildanus, *Cent.* ii. obs. 33, p. 108 ; Bonetus, *Sepulch.* lib. iv. sect. iii. obs. 21, sec. 3, 4, 5 ; Morgagni ; lib. iv. art. 11 ; and Beck, *Trans. Pathol. Society*, vol. vi. p. 220.] Dr. Leichtenstern speaks of the importance of recognising this condition in life, with a view to avoidance of undue exertion and regulation of diet ; and especially cautions against the use of emetics, which have proved fatal in numerous cases of the same kind. He discusses the means of treatment, if incarceration occur, naming the use of air and water-injections into the stomach and rectum, pumping out the stomach, exploring the rectum by the hand ; and if these fail, laparotomy (abdominal section) as recommended by Laennec and Kirschbaum, which he considers likely to succeed, the site of incarceration being known. He has collected 245 cases of diaphragmatic hernia, but reserves commenting for the present. Although Laennec in 1822, Dreifuss in 1829, and Bochdalek in 1848, had pointed out the probable utility of auscultatory and percussion-symptoms in forming a diagnosis of diaphragmatic hernia, it would appear that only four such cases have been really diagnosed during life—Olivet and Norris only suspecting their cases to be such. These four are Bowditch's (*Treatise on Hernia diaphragmatica*, Buffalo, 1853), Diego Coco's (*Virchow's Jahresberichte*, 1872), Lindwurm's (Popp in *Deutsche Zeitschrift für Chirurgie*, Von Hüter and Lücke, I. Bd.), and the one above described. The author considers left-sided diaphragmatic hernia six times as frequent as right-sided, from analysis of the 245 cases. [Notwithstanding the length of this abstract, many matters of interest have been omitted, simply from want of space. For the same reason, references to English cases are not inserted.—*Rep.*] W. BATHURST WOODMAN, M.D.

ANGER ON HETEROPLASTY.—In a recent note to the French Academy (*Comptes Rendus*, Nov. 23) the author says he has made some researches and clinical observations, as to transplantation of certain parts of the skin borrowed from amputated members and applied with the view of obtaining cicatrization in other subjects. The name of heteroplasty has been proposed for this operation.

In treating the case of a patient who had a large burn on the foot and leg, the author first sought to promote cicatrization by using epidermic autoplasmic grafts, as recommended by Reverdin; but as it seemed difficult to get a sufficient number from the subject himself, he tried grafts from the amputated members of other subjects, and succeeded. This first success led to his operating with dermo-epidermic grafts, obtained in the same way. He succeeded here also, and he then presumed he might advantageously transplant grafts comprising the whole thickness of the skin, and even the subcutaneous cellular tissue.

A first heteroplastic cutaneous graft was made with pieces comprising the whole thickness of the skin, taken from the palmar surface of an amputated finger. The grafts were $\frac{1}{2}$ to $\frac{3}{4}$ inch in circumference, and were applied to the ulcerated leg of another subject one or two minutes after amputation; they were held by strips of diachylon. Three days afterwards M. Anger removed the strips and found that the grafted parts were intimately united to the surface of the burn, and manifestly vascularised.

He also effected the grafting of portions of skin of entire thickness, which surrounded a tumour of the lumbar region; also the preputial mucous membrane of a young subject that was circumcised.

In all cases the graft was made with tissues that retained the temperature of the body. In the two last the subjects were placed near each other, so that the transplantation might be done without any loss of time.

Observation showed that the epidermis covering the grafted pieces became in a few days less adherent, and seemed about to fall off; which it actually did at the end of five or six days, leaving the piece denuded like the surface of a tegument newly recovered from a blister. The cicatrix, nevertheless, formed very rapidly over the whole surface of the piece and at its periphery. This result seems to warrant the belief that the grafts called epidermic only succeed on condition of a lamella of the dermis remaining united to the epidermis.

M. Anger remarks that he can anticipate numerous and fruitful applications of his method. The operations are always absolutely inoffensive, since the parts separated for other operations suffice. The surgeon should pay the greatest attention to the diathetic states which may have pre-existed in the subject from whom the tegument is removed. It would be very imprudent to perform heteroplasty with portions of skin taken from the direct neighbourhood of a cancerous tissue, or to operate with the tissues of a subject having contagious disease.

[There is nothing new in M. Anger's method. Freshly amputated limbs have been used as sources of skin for grafting by English surgeons for the last four years at least.]

JAGER ON NECROSIS OCCASIONED BY PHOSPHORUS.—The recognition of necrosis occasioned by phosphorus dates from about twenty years back.

Lorinser, of Vienna, was the first to describe this disease, which has since been much studied by many surgeons. The seat of the disease is generally in the maxillary bones, but it may extend thence to the bones of the face and the cranium. Dr. Jager has studied this complication and the resultant indications for its treatment, in a work entitled *Contribution à l'Étude de la Nécrose de Cause phosphorique*. He affirms that this extension of the disease is occasioned by the stagnation of the pus, which must be met by incisions and openings; and also by the expectant method, which, however, even up to the present time, has been too generally applied. The author then passes in review the opinions of different writers on the subject of phosphorus. Various surgeons are divided into two camps; some, like Lorinser, Trélat, Hervieux, and Nélaton, wishing to delegate to nature the task of accomplishing the work of separating the sequestra; while others, amongst whom may be named Langenbeck, Billroth, Jobert de Lamballe, Verneuil, and Guérin, advise intervention when the necrosis threatens to invade the whole of the bone, and also the resection of the necrosed parts before their removal. In support of the latter method, M. Jager states that the osteitis often continues its invading progress after the sequestrum is removed; besides which, the suppuration which accompanies the disease is a cause of exhaustion. Finally, when the pus does not flow freely and easily, it may loosen the periosteum and favour the progress of the osteitis.

This, however, is by no means an exhaustive theory. Every case, as M. Magitot remarks in the *Union Médicale* for 1873, offers particular conditions and different indications. This subject is worthy of the consideration of practitioners who find themselves in face of two methods of treatment of an entirely opposite nature, and who will do well to act according to the special conditions in which they find the local state, and the general condition of the patient.

RECENT PAPERS.

- Buccal and Facial Prothesis. By M. Delalain. (*Gazette des Hôpitaux*, December 1.)
 On Compression in Hyarthrosis of the Knee. By Dr. Maurice Lagier. (*France Médicale*, December 5.)
 On Capillary Puncture of the Bladder. By M. A. Fochier. (*Lyon Médical*, December 6.)
 On the immediate Union and the Mode of Dressing Wounds. By Dr. Boeckel. (*Gazette Médicale de Strasbourg*, December 3.)

MATERIA MEDICA AND THERAPEUTICS.

EMMET ON HOT WATER INJECTIONS IN UTERINE DISEASES.—Dr. T. A. Emmet (*New York Medical Journal*, July, 1874) makes the following remarks upon hot water as a means of controlling pelvic circulation and imparting tone to the pelvic vessels.

The prolonged use of hot water is followed by a tonic contraction of the arterioles, and thus an approach to healthy action. The immediate effect of heat is dilatation, the secondary effect contraction. The best method of using hot water to obtain its contractile effect is as follows.

The woman is placed on her back, with the hips elevated by a properly shaped bed-pan under her, and a gallon or more of hot water at 98° Fahr. or a

higher temperature is slowly injected into the vagina by means of Davidson's syringe. This operation blanches the mucous membrane and diminishes the size of the canal, as if strong astringent had been used. While the hips are elevated the vagina will retain during the injection a large quantity of water, which, by its weight, will distend every portion of the canal, so that it will come into direct contact with the mucous membrane, under which the capillaries lie. The vessels of the neck and body of the uterus pass along the sulcus on each side of the vagina, and their branches encircle the canal in a most complex network. The vessels of the fundus, through the veins of which the blood passes by the liver back into the general circulation, communicate with those below by anastomosis.

We can thus, through the vagina, influence directly or indirectly the whole pelvic circulation. We can so diminish the supply as not only to check congestion, but we can literally starve out an inflammation. I know, says Dr. Emmet, from my own personal observation, that several of these injections a day at 100° to 106° will abort an attack of cellulitis if resorted to early enough, and their use persevered in, with the aid of rest and anodynes. These injections exercise a most beneficial effect on the reflex system, by allaying local irritation. I know no better means for removing the nervousness and sleeplessness of an hysterical woman, than a prolonged hot-water vaginal injection when administered by an experienced hand. The injections will frequently soothe a patient in less time than could be done by any drug in the *Pharmacopœia*. To receive permanent benefit from their use, they must be continued until the patient is restored to health. They should be given once a day, preferably at bed-time. The only position in which the patient can receive any benefit from them is on the back, with the hips elevated, as described. She cannot administer them properly herself—and I know no arrangement which can take the place of an intelligent nurse. As the patient improves in health, the quantity of water can be diminished and the temperature lowered, until the injections are discontinued from daily use, but for some time they should be employed for a few days after each period.

ROBIN ON THE PHYSIOLOGICAL AND THERAPEUTICAL ACTION OF JABORANDI.—At the meeting of the Paris Société de Thérapeutique, on November 11 (*Bulletin Général de Thérapeutique*, November 30), M. Robin gave an account of the result of researches made by him, and under his direction, on this new therapeutic agent, in M. Gubler's wards. When an infusion of four grammes (about one drachm) of jaborandi leaves is administered to an adult, the following changes take place in the urinary secretions. The quantity of urine diminishes in a very noticeable manner on the day the remedy is administered, but on the next day there is sometimes a slight augmentation, sometimes the usual amount. The urea undergoes the same modifications in quantity; it diminishes on the day the jaborandi is given, increases slightly again on the next day, and then falls to the normal amount, so that it may be asserted that jaborandi does not increase combustion of the animal economy. Chlorine and the chlorides, as well as the uric acid, also undergo the same quantitative changes, and diminish on the first day only to increase on the second. Examination of the saliva and the perspiration has not shown the

presence of uric acid, but urea is found in notable quantities in these two liquids.

In several cases of Bright's disease, jaborandi lowered the amount of albumen on the first day it was administered, but on the next day the quantity increased again, and sometimes exceeded the amount noted before the experiment.

In thirty-two experiments in which the temperature and the pulse were noted, it was observed that at the moment the sweat was produced, there was an increase of the pulse and of temperature; then during the period of active sweating, it was sometimes noted that these two elements remained at the same point as at the outset of the experiment. Sometimes there was a slight diminution; but after sweating, a very notable lowering of the pulse and of the temperature were observed, which sometimes lasted two days after the experiment.

Sphygmographic tracings, taken at different stages of the administration of this drug, showed almost complete asystolia with a very noticeable diminution of vascular tension during the sweating stage. M. Robin therefore thinks that jaborandi has a quite special action on the vaso-motor nerves, which are paralysed by it; hence the cardiac asystolia and the abundant secretions of saliva and sweat. When administered in fractional doses, jaborandi does not produce either perspiration or salivation, but becomes a powerful diuretic.

In the case of animals, as dogs and guinea-pigs, in addition to the salivation, an enormous secretion from all the intestinal glands was noted, accompanied by considerable congestion of the digestive canal, which might go on to hæmorrhage. M. Robin proposes to continue his researches, and to furnish the fresh results of them to the Société de Biologie.

M. Gubler said that, whilst admitting the paralyzing action of the vaso-motor nerves, which would increase the secretions and the excretions, a special irritant influence of certain elements of the jaborandi on the sudoral and salivary glands of the kidney must be allowed for, since this irritant action stimulated their secretory powers.

REGNAULT ON SUBCUTANEOUS INJECTIONS OF MORPHIA IN DYSPNŒA.—According to Dr. Alexander Regnault (*L'Union Médicale*, June 2, 9, and 18), subcutaneous injections of hydrochlorate of morphia are not only useful in relieving pain, but modify very effectually attacks of dyspnœa. This result is always obtained, whatever may be the cause of the breathlessness, whether it be owing to an affection of the thoracic organs or not—whether or not it be accompanied by pain.

The observations which Dr. Regnault brings forward to prove this statement are divided into two classes. In the first the result only is stated, without any mention of the cause. In the second the *modus agendi* is studied, and with this object, the pulse, the temperature, and the respiration, are carefully noted. In looking over the observations of the first series, it is at once seen that the number of inspirations is lessened soon after the injection of the morphia, and this decrease is entirely in accordance with the received ideas as to the action of opium and morphia. Opium diminishes the number of respirations; it is therefore hardly astonishing that an injection of hydrochlorate of morphia should successfully combat dyspnœa, arising from any cause whatever.

As the number of respirations decreases, the size

of the chest increases. The majority of patients treated for dyspnoea, were breathing quickly and noisily before the injection; ten minutes or a quarter of an hour afterwards their respiration was imperceptible to the ear, and on inspection the chest was seen to dilate slowly and regularly.

In support of the preceding statements, several observations, chosen from among the most striking contained in the work, may be quoted. In observation iii. of the second series, under the title of pulmonary phthisis, complicated with pneumonia, on June 27, 1872, the oppression was extreme, the number of respirations amounting to fifty per minute. Two injections of a solution (one part in 100) of hydrochlorate of morphia were administered. Ten minutes afterwards the patient was perfectly calm, and the number of respirations was reduced to twenty-three. In another case the result was the same. The patient, who was suffering from traumatic pneumonia, had, on the evening of May 13, a terrible attack of dyspnoea. The number of inspirations per minute was forty-eight; on the following morning it had fallen to thirty, and the patient felt quite comfortable.

The cessation of the dyspnoea cannot be attributed to any other than the medicine in question, for in some instances the result followed rapidly on the administration of the morphia, ten minutes having sufficed to produce a complete calm, and in one case the patient was quieted in from three to four minutes. The best preparation both for soothing pain and preventing dyspnoea is the hydrochlorate of morphia. Narceine, of which the effect is perhaps more certain, may be used, but the difficulty of obtaining this substance perfectly pure, and also its high price, is an obstacle to its employment. Injections of atropine should not be used on account of their danger and the serious accidents they have caused. The solutions of morphia generally used are of the strength of one in fifty or one in a hundred.

The concentrated solution is preferable, because in giving the same quantity of morphia in half the volume there is less chance of abscesses being formed where large doses have to be administered.

To obtain a certain and a rapid result, it is safer to inject into the walls of the thoracic cavity. This fact seems an argument in favour of the opinion held by some, that morphia has both a local and a general action.

The following conclusions may be drawn from Dr. Regnault's observations.

1. Injections of morphia seem to possess a real efficacy in cases of dyspnoea, whether it be a symptom of disease or a complication of it.

2. The decrease of the number of inspirations under the influence of the morphia explains the invariability of the result.

3. The effect produced is more certain and more rapid if the injections be made in the thoracic walls.

HUCHARD ON FEVER AND COLD BATHS.—A series of articles on the treatment of fever by cold baths has appeared in *L'Union Médicale*, in which M. Henri Huchard draws a parallel between the German (Brand's) and French methods, and asserts that in 1849 a French medical man, M. Wanner, communicated to the Académie des Sciences the advantageous results which he had obtained by the use of ice-cold enemata and lotions in typhoid fever. In 1849, another Frenchman, Dr. Jacquez (of Lure)

spoke highly of the good results obtained by the use of bandages, lotions, and enemata in the treatment of dothienenteritis; and in 1852, Dr. Leroy published the statistics of the results of Dr. Wanner's and his own treatment of typhoid fever. He found the mortality to be seven per cent.

Dr. Huchard makes the following observations.

1. It is certain that in typhoid fever the elevation of temperature through a relatively long period creates a serious danger, which we have considered sufficiently to make us hold very definite views on the subject.
2. Brand's method is difficult to carry out and often impracticable; the method of the French doctors, on the contrary, can be easily adapted to the constantly changing indications of the disease.
3. The two methods, which have a common aim, give results which are sensibly the same. In most cases we prefer the method of cold applications, lotions, and enemata. However, in cases where the temperature attains 41° or 41.5° C. (105.8° or 106.7° Fahr.), or rises higher; in cases where the temperature remains high for a lengthened period, and when the ataxo-dynamic phenomena are intense; and specially in cases of dothienenteritis where the danger arises from a hyperpyretic temperature or from predominance of grave ataxo-dynamic symptoms, Brand's method may be used with advantage; but it is in such cases only that it can be employed.

The French method is a combination of various means, which may be condensed into the following rules for application.

- a. Every two or three hours (according to the indications) cold lotions should be applied for the space of two or three minutes to the whole surface of the body. Dr. Wanner proposes continuing night and day the application of cold, by means of a brush to the affected parts. But M. Huchard prefers lotions applied with a large sponge; and Dr. Jaccoud recommends for the lotions the use of pure aromatic vinegar, which, he considers, has the triple advantage of producing a more intense and durable cold, of better exciting cutaneous hæmotosis, and of keeping up around the patient a scented atmosphere which revives him and maintains the purity of the air. The lotions are applied as quickly as possible with a large sponge to the whole surface of the body, and the patient is then immediately wrapped in a blanket to dry. This blanket should be placed on oil-skin, and should be passed under the body of the patient, who should be completely naked before applying the lotion. The temperature of the lotion may vary from 8° to 10° Cent. (46.5° to 50° Fahr.) according to the season and to the temperature of the patient. M. Jaccoud thinks that in winter the lotion should be at the temperature of the room, whilst in summer it should be kept in a cool place.

- b. Every two or three hours carefully alternating with the lotions, should be administered one or two enemata of water at 8° or 10° Cent. (46.5° to 50° Fahr.) and even, if the indications be urgent, at the temperature of melting ice.

- c. Bandages of cold water, renewed as they become heated, should be applied to the abdomen, the chest, and the head, according to the predominance of the abdominal, thoracic, or cerebral symptoms.

- d. The patient should drink nothing but ice-cold water, and that as frequently as possible.

BÉCHAMP ON THE PEROXYCHLORIDES OF IRON FROM A MEDICAL POINT OF VIEW.—After having shown that since his father's researches a series of

combinations from $\text{Fe}_2 \text{Cl}_3$, $\text{Fe}_2 \text{O}_3$, to $\text{Fe}_2 \text{Cl}_3$, $28 \text{ Fe}_2 \text{O}_3$, may be obtained by treating perfectly neutral perchloride of iron with varying quantities of peroxide of iron, M. Béchamp, junior (*Montpellier Médical*, 1874) indicates the octoferic peroxychloride as the best for internal use. This officinal peroxychloride is given in doses of from five to twenty drops.

The following are the conclusions at which M. Béchamp has arrived.

'The octoferic peroxychloride of iron is one of the compounds the most easily absorbed, as it is most readily transformed into compounds containing the minimum of iron.

'It is easily tolerated by the system, as it is neither caustic nor irritant, and it does not offer the disadvantages that many preparations of iron do. It is tasteless, and acts internally as a hæmostatic, in the same way as the perchloride of iron. It can be employed in surgery as a hæmostatic. It coagulates the blood in the same way as the perchloride of iron; but its power of coagulation and its causticity diminish with the base of the oxychloride. The surgeon has therefore at his disposal liquids decreasing gradually and uniformly in astringency and causticity. Finally, it may serve as an antidote in cases of poisoning by arsenic.'

GAUDIN ON THE THERAPEUTICAL INDICATIONS IN SEA-BATHING.—In a thesis on sea-bathing (*Thèses de Paris*, 1874) Dr. George Gaudin comes to the following conclusions. 1. From its elementary and chemical composition, sea-water is a revulsive agent, which accounts for the harmlessness of the vapour of sea-water. 2. A salt-water bath has no advantage over a cold fresh-water one, except that the reaction which follows it is increased by the stimulating action of the salt water on the integument. 3. There is no absorption by the skin of the principles contained in sea-water; and therefore its therapeutical results cannot be explained in that way; and further, the increase in the quantity of urine secreted is no proof of the absorption of water. 4. To sum up, we believe that the physiological and therapeutical results attendant upon sea-bathing are due to the revulsive properties of the sea-water, but still more to the sea-air. 5. Except in cases of respiratory and secretory anæmia, in cases of scrofula, of rachitis, and of some catarrhal pulmonary affections, sea-bathing offers no definite indications.

PUYGAUTHIER ON THE USE OF OXIDE OF ZINC IN THE TREATMENT OF DIARRHŒA.—From the results obtained by M. Gubler, Dr. Henry Puygauthier (*Thèses de Paris*, 1874) considers the oxide of zinc as the most prompt and effectual agent in cases of diarrhœa. Four grammes (about one drachm) of the oxide are given during the day, in doses of one gramme every two hours, in wafer-paper. In order to prevent the formation of salts of zinc, and the nausea and vomiting which would ensue, M. Gubler mixes four and a half grammes with fifty centigrammes of bicarbonate of soda, and has obtained with this mixture the best results. Administered in this way, the oxide of zinc loses its nauseating and emetic properties, whilst it retains all its power as an anti-diarrhœic.

R. SHEDLOCK.

posed the following as an excellent form for the administration of raw meat:

- R. Raw meat, ʒviii ;
Sweet almonds, ʒjss ;
Bitter almonds, ʒjss ;
White sugar, ʒijss .

The almonds are blanched, and the whole beaten together in a mortar until a rose-coloured homogeneous paste is obtained. This is of an agreeable flavour, and may be mixed with water to form an emulsion, or it may be beaten up with the yolks of eggs, and mixed with milk instead of water.

Mr. James Kemble, in the *American Journal of Pharmacy* for October, proposes the following very similar formula:

- R. Fresh raw beef (lean), ʒvj ;
Sweet almonds, deprived of their shells and roasted, ʒj ;
Bitter almonds, ʒvj ;
Sugar, ʒvj ;
Glycerin, ʒij ;
Water sufficient for emulsion, ʒj .

Rub or beat the beef, almonds, and sugar to a fine pulp in a wedgwood or wooden mortar, then add water gradually until a smooth emulsion is formed, and strain through a sieve or coarse cloth; return the residuary mass to the mortar, manipulate with the balance of the water until ʒxv are obtained, strain all through a finer strainer, add the glycerin, and bottle; the bottle is to be kept well corked. The dose is ʒj , containing ʒij of the beef.

The physician, in prescribing, can order the addition of brandy, pepsin, or any other medicine he wishes to administer at the same time.

WATSON ON THE USELESSNESS OF MERCURY IN SYPHILIS.—Dr. P. H. Watson takes a prominent place among the non-mercurialists. At a recent meeting of the Medico-Chirurgical Society of Edinburgh, he stated that his experience of the administration of mercury in syphilis was, that it did no good but a great deal of harm. Syphilis left untreated by anything except local applications got as certainly well as measles or any other exanthem. To give mercury in measles would hardly be deemed indispensable by any one at the present day, but it would be quite as rational as to give it in syphilis. No doubt, the early symptoms of syphilis disappeared rapidly under the use of mercury, but only to return again, unless the mercury were continued throughout the whole period of the eruptive tendency. Dr. Watson wondered how many of the strenuous advocates of mercurial treatment ever watched a case of syphilis when no treatment was allowed to complicate its natural progress. He was sure, if they did watch a few such cases, they would cease to employ mercurials. It was the opportunity afforded in watching cases under syphilisation which led him to these conclusions. He had no objection to mercurial applications to local lesions, such as the indurated chancres, or to condylomatous eruptions. The mercurial vapour-bath acted on this principle when no inhalation was practised, and, by its local effect upon the erupted surfaces, tended to hasten their disappearance. In cases of syphilis where mercury had been administered, serious so-called tertiary lesions did sometimes occur, and in these mercurials sometimes were required to overcome the evil results of their early administration. In such circumstances, he believed that the injection of the bichloride of mercury, as recommended by Dr. Duncan, might advantageously take the place of the use of

YVON AND KEMBLE ON EMULSION OF MEAT.—At a meeting of the Société d'Émulation pour la Science Pharmaceutique, (*Detroit Review of Medicine and Pharmacy*, October, 1874) M. Yvon pro-

mercury by the mouth, especially in cases where the stomach was rendered irritable by the use of the drug. The bichloride of mercury was best known to us in the shape of the toy called *serpents de Pharaon*. Possibly in the case of the injection of the bichloride in syphilis, this only needed a slight transposition of name to explain its action, behaving in the disposal of the germs of syphilis just as the redoubted *serpent de Moïse* in the instance of the magical imitations of the Egyptians.

Dr. Cadel said, he had seen mercury administered subcutaneously in Hamburg in 1868. In Christiania, Professor Boeck ridiculed the treatment. His own experience coincided with that of Dr. Watson, that mercury was unnecessary in syphilis.

RECENT PAPERS.

- Treatment of Ammoniacal Cystitis by Benzoic Acid. By M. Gosselin and M. Albert Robin. (*Archives Générales de Médecine*, November, 1874.)
- On the Abuse of Digitalis. By Dr. Duroziez. (*Gazette des Hôpitaux*, October 31.)
- Neurotic Medicines: with Special Reference to Camphor and its Monobromide. By Robert Lawson, M.B. (*Practitioner*, November, 1874.)
- On Cinesalgia, especially in Muscular Strain, and its Immediate Cure by Local Faradisation. By M. Gubler. (*Journal de Thérapeutique*, October 25.)
- On some New Medicines. By M. A. Bordier. (*Record de Thérapeutique*, October 25.)
- The Relation of Ozone to Disease. By Dr. Baldwin. (*American Journal of Medical Sciences*, October, 1874.)
- On the Use of Chloral in Cases of Phthisis. By Dr. Haynes. (*American Journal of Medical Sciences*, October, 1874.)
- On Various Therapeutic Uses of Calabar Bean, especially in Tic. By W. Munro, M.D. (*British Medical Journal*, October 31.)
- Note on the Therapeutic Action of Apomorphia. By M. Dujardin-Beaumetz. (*Bulletin Général de Thérapeutique*, October 30.)
- The Action of Quinine on the Circulatory System and on Muscular Fibre in General. By Dr. V. Chirone. (*Lo Sperimentale*, August, September, and November, 1874.)
- Experimental Studies on the Medicinal Action of Cantharides. By Dr. A. Cantieri. (*Lo Sperimentale*, July, August, September, and October, 1874.)
- The Milky Juice of *Jatropha Curcas*, a powerful Haemostatic. By Baboo Udhoj Chand Dutt. (*Indian Medical Gazette*, October 1, 1874.)
- The Action of Mercury on the Liver. By M. E. Labbé. (*Gazette Médicale de Paris*, nos. 44 and 45.)
- Physiological Effects of Nitrite of Amyl. By M. Labadie-Lagrave. (*Gazette Hebdomadaire*, November 13.)
- On the part played by Wine in Nutrition. By M. Bouchardat. (*Gazette des Hôpitaux*, November 12.)
- Does Mercury increase Fat? By Dr. A. Armangaud. (*Le Bordeaux Médical*, November 8.)
- On a New Method of treating Urethral Blennorrhagia by Turpentine Vapour-Baths. By Dr. Bremond, jun. (*Gazette Hebdomadaire*, November 20.)
- On the Physiological Action of Arsenious Acid, according to the recent Researches of Bochar, Unterberger, and Johansson. By M. J. Alquier. (*Lyon Médical*, November 22.)
- Long Standing Nocturnal Incontinence of Urine cured by Bromide of Potassium. By Dr. Blanchard, of Geneva. (*Lyon Médical*, November 22.)
- Observations on the Hypodermic Use of Atropia in Muscular Rigidities, Rheumatic and Myalgic. By Dr. J. C. Wilson. (*Philadelphia Medical Times*, November 7.)
- On the Action of Hydrate of Croton-Chloral in Megrim. By Sidney Ringer, M.D. (*British Medical Journal*, November 21.)
- On Croton-Chloral. By M. A. Bordier. (*Journal de Thérapeutique*, November 25.)
- Opium versus Belladonna, with Cases of Poisoning. By Dr. Curtis Smith. (*Philadelphia Medical and Surgical Reporter*.)
- On the Physiological Action of the Chinoline and Pyridine Bases. By Drs. McKendrick and Dewar. (*Medical Times and Gazette*, November 28.)

- Eucalyptus Globulus. By T. D. Talbott, M.D. (*The Clinic*, November 14.)
- Electricity as a Restorative Agent in Narcosis and Asphyxia. By J. J. Caldwell, M.D. (*Virginia Medical Monthly*, November, 1874.)
- On the Use of Wine in Acute Diseases and Chronic Affections. By M. E. Bégin. (*Gazette des Hôpitaux*, November 28.)
- On the Method of Administering Phosphate of Lime. By Dr. Geneuil. (*Gazette des Hôpitaux*, November 28.)
- On New Medical Electric Apparatus. By Dr. Gariel. (*Archives Générales de Médecine*, December, 1874.)
- Absorption of Phosphate of Lime. By M. Coire. (*Gazette des Hôpitaux*, December 1.)
- Tonic Treatment. By Dr. Hubert. (*Le Mouvement Médical*, December 5.)
- On Jaborandi. By Sidney Ringer, M.D. and A. Gould, M.B. (*Practitioner*, December, 1874.)
- On the Use of Digitalis in Diseases of the Heart. By H. C. Wood, M.D. (*Philadelphia Medical Times*, November 14 and 21.)
- The Employment of Croton-Chloral for Children as compared with Chloral. By Dr. Bouchut. (*Gazette des Hôpitaux*, December 5.)

OPHTHALMOLOGY AND OTOTOLOGY.

ILLING ON THE CAUSES OF HEMIOPIA.—In the *Allgemeine Wiener Medizinische Zeitung*, nos. 24, 25, and 26, Dr. Illing, assistant to Professor Stellwag von Carion, has recorded in great detail an interesting case of hemiopia, which is worthy of attention just now when the hitherto received and accepted notions with regard to the anatomy of the optic commissure have been challenged and controverted by anatomists of unimpeachable authority.

Lieutenant A. D. retired to his bed-room in good health on the evening of February 11, 1874; and, not knowing that there was any fire still burning in the stove, he closed the windows and the ventilator of the room. At twelve o'clock on the day following, the room was opened, and he was found insensible in his bed. After active restorative measures had been adopted, amongst others a powerful emetic, he was restored to consciousness at the end of three hours, but he appeared to be absolutely blind. In the course of the next few days, however, his sight returned to such an extent as to permit his seeing large objects as though through a fog, and his general condition improved, so that, with the help of a stick and with the arm of a comrade, he was able to leave his room. In the course of the next few days the indistinctness of vision increased, and he applied to Dr. Illing, who thus describes his condition.

Both pupils were of medium size, and sensitive to light; right eye, myopia = $\frac{1}{4}$; left eye, myopia = $\frac{1}{2}$. The central vision of the right eye was normal, but that of the left eye was below the standard. The optic disc in each eye was of a normal colour, but there was a myopic staphyloma around each, larger in the right than in the left eye; in the neighbourhood of the yellow spot in the left eye was a yellow-white patch of atrophied choroid, bordered with black pigment, the cause apparently of the defective central vision in this eye. There was no affection of the third pair, nor of the facial nerve, nor, indeed, of any cerebral nerve; his gait was unsteady, but there was no weakness of either half of the body. This unsteadiness was due to the fact that the patient, owing to his extreme myopia, had been accustomed, till his illness, to trust to very deep concave glasses,

but, having lately put them aside, he had been seriously at a loss to find his way about. He was, however, advised very strongly not to use his eyes in the least, and to be exceedingly moderate in his eating and drinking. His condition remained unchanged for some time. About the middle of March he found he had considerable difficulty in reading, and that if he removed the letters from his eyes to a greater distance, and especially if the words were long, he lost sight of the last part of them. He next observed that he could not see objects which lay to the right side, and he was very much astonished when it was demonstrated to him that even with his left eye he could not see anything which was situated to the right. He could see anything which fell within the inner half of the right visual field. Although he was very intelligent, and was constantly examining his own eyes, he was very hard to persuade that there was any defect in his left eye.

The extent and the shape of the field of vision in both eyes were mapped out with Förster's perimeter. That of the left eye was bounded by a line which extended upwards of 24° , and 20° to the right of the central cross, and 44° downwards; this line was not exactly parallel with the vertical meridian, but at its lower end formed a slight angle with it. From each extremity of this line the boundary of the field of vision stretched outwards so as to enclose a polygon. The boundary line of the visual field in the right eye passed exactly through the fixation point, upwards to a distance of 39° , and downwards 45° , slightly arched. The upper end of this line formed an exact right angle, and the lower end rather less than a right angle, as the boundary line turned inwards to enclose rather less than the usual extent of visual field on this side. Dr. Illing was much impressed in the examination of this case with the extreme value and handiness of Förster's perimeter, and he adds that he was extremely fortunate in having to deal with so intelligent a patient. The young officer had a firm idea that his right eye alone was in fault, and was very willing to give his physician very many sittings in which to repeat his investigations. Dr. Illing in all his measurements chose the centre of the blind spot as his point of fixation, and he ascertained that in the left eye this spot was 12° broad to the right of its centre, and 9° to the left. He also took the opportunity to ascertain if the increased breadth of this blind spot corresponded with the size and the shape of the posterior staphyloma; and he found, to his surprise, that although the staphyloma was nearly circular in shape, or, at least, resembled an ellipse with its long axis horizontal, yet the blind spot appeared like an ellipse with its long axis vertical, a discovery which agreed with the assertion of Heymann, made when he communicated to the Ophthalmological Congress at Heidelberg six years ago his new method of estimating the extent of the field of vision, to the effect that the elongation of the blind spot in the vertical diameter was due to the shadows which the central vessels, as they pass upwards and downwards, cast upon the retina.

It was extremely difficult to obtain an exact and sharply defined limit within which the hemiopia was confined; for after careful examination, aided by the intelligent co-operation of the patient, it was found that, on moving the object towards the boundaries of the field of vision, its colour was recognised some time before its shape and outlines were distinctly visible. In order to avoid, as far as might be, all possibility of error, the fixation-object was changed,

so as to check the measurements one with the other. The patient was ordered also to darken the eye, which was not under examination, by means of his hand, in order to avoid the narrowing of the palpebral aperture and consequent contraction of the visual field, which has been shown by Dobrowski to occur in a very appreciable degree. On the supposition that the optic commissure was undergoing pressure through an extravasation of blood, the patient took twenty grains of iodide of potassium daily for three weeks, and by the advice of some friends he underwent a course of electricity, but without any improvement in his condition, and, finally, in the month of May he returned to his military hospital.

The explanation of this case of hemiopia, from an anatomical point of view, rests upon one of two theories with regard to the arrangement of the nerve-fibres in the optic commissure. The first is based upon the recent observations of Michel* and of Mandelstamm, which go to show that the entire optic tract crosses its fellow at the commissure and passes into the optic nerve of the opposite side; and the other rests upon the long received opinion of Brown-Séquard and others, to the effect that each optic tract supplies fibres to each optic nerve, and that the inner fibres alone of each tract cross each other in the commissure. Dr. Illing believes that the peculiarities of the case which he records may best be explained upon the theory that the optic tracts completely cross one another, and by supposing the existence of an extravasation of blood within the angle of the commissure nearest to the left Sylvian fissures, and that the clot of blood compressed, though unequally, both optic tracts in such a manner as to injure the fibres, or some of them, which pass to the inner half of the left retina, and also to a greater extent those fibres which are distributed by the other optic tract and optic nerve to the outer half of the right retina. And as the defect in the visual field in the two eyes is so unequal, and as the two halves which retain their visual power cannot by experiment be made to combine so as to form one symmetrical perfect field, Dr. Illing does not see how to explain his case on the theory of the partial decussation of the nerve-fibres. He considers it very probable that the hæmorrhage, if there were any, was due to the violent sickness which resulted from the use of the emetics, as it is most unlikely that poisoning by noxious gas could occasion it. The patient before the present seizure was in perfect health, and there was no history of syphilis to occasion intracranial disease; nor any appearance or evidence of the existence of cerebral aneurism or of any other kind of tumour. As Dr. Illing remarks, the future progress of this case will be of great interest, and any further account which he may be able to obtain will be of considerable value.

ZEHENDER, LORING, AND MAGNUS ON THE DIAGNOSIS OF EMBOLISM OF THE ARTERIA CENTRALIS RETINÆ.—In this paper (*Klinische Monatsblätter für Augenheilkunde*, August-September, 1874) while he admits the admirable skill and cleverness with which the late Von Graefe laid down the ophthalmoscopic appearances which attend embolism of the central artery of the retina, Dr. Zehender yet inclines to believe that at the present

* Von Graefe's *Archiv*, Band xix. 2 Abth.

time there is a tendency to describe as instances of embolism certain cases which, while they resemble in many points the pictures which Von Graefe has sketched, are nevertheless wanting in one or more features of importance.

The phenomena which are usually said to betoken arterial embolism are sudden loss of sight, and a pallor of the termination of the optic nerve, with a narrowing or even obliteration of the arterial trunks; later on there is associated with these appearances a remarkable opacification of the retina in the neighbourhood of the yellow spot, and the subsequent appearance in this opacity of distended blood-vessels. It is the value of the latter change which Dr. Zehender calls in question; and in support of his disbelief he gives the details of a case which has lately occurred under his own observation; and to show that he is not alone in his mistrust of certain changes in the fundus being pathognomonic of embolism, he refers to the opinions of Loring and Magnus on the same point.

A countryman, aged twenty-one, without any exertion of any kind, and without being in any way able to account for it, became suddenly blind in the right eye, on the evening of April 25, and after an interval of four days he applied to Dr. Zehender. The vision of the left eye was perfect, and its refraction was normal. With the right eye he could but just discern the light of a candle at two inches; when it was held at a greater distance he could not see it at all; no reason whatever appeared for this sudden onset of blindness. On examination of the defective eye, the blood-red appearance of the fovea was distinctly seen, in contrast with the hazy appearance of the infiltrated retina in its neighbourhood; the vessels in this situation were evidently fuller than was natural, and more clearly seen; here and there a minute glistening yellowish white point could be seen in the immediate proximity to the fovea. The appearance of the fovea exactly tallied with the well-known illustration in Liebreich's atlas. The arterial branches, as they passed through the optic disk, appeared empty and bloodless; but the veins on the other hand were full, and as a remarkable fact there was a very decided venous pulse, the existence of which is an argument against the occurrence of embolism, inasmuch as its presence was an unerring witness to the continuance of the circulation. Two small veins which entered the disk on the temporal side were diminished in calibre. At the commencement of the attack, the man had suffered severe headache. On the eighth day afterwards two small hæmorrhagic spots to the inner side of the fovea were seen; by the twelfth day these had disappeared, and their place was occupied by small glistening specks, apparently containing crystals of stearine. In the course of time the veins dwindled, and the pulsation was no longer evident, and the case then assumed all the ordinary characteristics of arterial embolism. An examination at the hands of Professor Thierfelder demonstrated the existence of ventricular hypertrophy associated with insufficiency of the mitral valve; a loud systolic murmur was audible at the apex, and the second sound was muffled. The pulse at the wrist was somewhat later than the heart's systole. In reporting this case, Dr. Zehender asks whether it was really one of arterial embolism, or whether an extravasation of blood around and between the optic nerve-fibres would not give rise to similar phenomena.

In the *American Journal of Medical Sciences* for

April 1874, under the heading Remarks on Embolism, will be found an account of five cases which possessed, in a greater or less degree, the so-called characteristic features of embolism, and which had been diagnosed as being of that nature; but the narrator, Dr. Loring, thought that there was room for doubt as to the correctness of the diagnosis, inasmuch as he was at a loss to understand how the mere obstruction of the arterial trunk could occasion all the subsequent changes which the fundus of the eye is seen to undergo.

At page 319 of this number of the *Monatsblätter* will be seen a short review of a paper published on this same subject by Dr. Hugo Magnus; from which it appears that he too was unable to reconcile the appearances met with in these cases with the occurrence of embolism, but was disposed to consider them as the result of hæmorrhage into the sheath of the optic nerve, or between the fibres of the nerve itself. He considers that it is not impossible to diagnose between the two conditions, and he should look upon the peculiar infiltration of the retina around the yellow spot as the result of pressure on the nerve from hæmorrhage, rather than as the result of the arrest of the arterial supply. The absolute and sudden blindness, or the limitation of the visual field, will be of importance in forming an opinion of the seat of the lesion also. Magnus finds his opinions to be strengthened by the result of a series of experiments which he has carried out, in which he has both made injections into the sheath of the optic nerve, and has obstructed the circulation through the nerve by means of ligatures, and has then carefully noted the consequences. In the result, he is strongly of opinion that many of the so-called examples of embolism should in reality be looked upon as instances of hæmorrhage either within the sheath, or between and amongst the fibres of the optic nerve.

BOWATER J. VERNON.

MISCELLANY.

THE RIGHT MAN IN THE RIGHT PLACE.—The post of head apothecary to the Paris Assistance Publique, has been obtained by a gentleman possessing the appropriate cognomen of *M. L'Extrait*.

FEMALE MEDICAL STUDENTS IN RUSSIA.—It is announced that fourteen female medical students have just completed their course of study, under the direction of the Ladies' Committee of St. Petersburg, and will be passed in the present month after their full term of three years.

RECENT advices from Djeddah state that Dr. Pasqua, the sanitary inspector of the Red Sea districts, has been studying the nature and progress of the outbreak of plague at Beni-Chehir in that locality. He has convinced himself that the disease is the bubonic plague; but since the month of September, the attacks have been very few in number and limited to one village. It is believed that the measures adopted by Dr. Pasqua, and carried out under the surveillance of Dr. Agop-Effendi, will have the effect of stamping out the disease altogether.

A POLICY OF ABSTENTION.—The Medical School of Paris was partially re-opened after the late disturbances, on December 1. Two of the apparitors belonging to the school had orders only to allow fourth-year students to enter the room where M. Chauffard was to resume his interrupted course of lectures, and he commenced with an audience of thirty-nine. But after the lapse of a few minutes the students departed one by one until, according to the *Progrès Médical*, M. Chauffard had only three left to listen to his doubtless carefully prepared discourse.

DR. J. W. HICKS has been elected to a Fellowship at Sidney Sussex College, Cambridge. Dr. Hicks was Senior in the Natural Science Tripos, and third among the Senior Optimes in 1870. He for some time held the Lectureship in Botany at St. Thomas's Hospital, and is now Demonstrator of Chemistry in the Cambridge University Laboratory.

ADULTERATION OF SCAMMONY.—We learn that a large trade has hitherto existed between Aleppo and England in extract of scammony; but we are told that comparatively little is now exported. 'On account of its mixture with other substances,' only twenty cases in all, weighing 2,100 lbs., were shipped during the past year, the value of which was 1,680*l.*, and the whole of this came to England. In the previous year, 737 cases were exported, showing that adulteration alone is rapidly driving this article out of the import market, for the roots are produced as abundantly as ever, and are dug up and sent to England, the extract being procured from them in this country; in 1873 467 cases, weighing 93,340 lbs., and valued at 362*l.*, were shipped from Aleppo to England. Considering the bulk and weight of the root, as compared with that of the extract and the consequent increase of the cost of freight, it would seem that this exportation of the roots themselves can scarcely be a profitable trade to the shippers, inasmuch as 467 cases are valued only at 362*l.*, while twenty cases of the extract are worth 1,680*l.*

EMISSION OF CARBONIC ACID BY LEAVES.—The phenomena of decomposition of carbonic acid by leaves under the influence of light is well known. The inverse phenomenon, that, viz., of absorption of oxygen, and emission of carbonic acid in the dark, has attracted much less attention. MM. Deherain and Moisson have just communicated to the Paris Academy an interesting memoir on the subject. They find from experiment that the quantity of carbonic acid emitted by leaves is comparable to that furnished by cold-blooded animals; frogs give, in respiration, a quantity of the gas much below that from leaves of tobacco, or mustard, or sorrel. The quantity that leaves emit increases with rise of temperature, and at 59° Fahr. (it is stated) the respiratory activity of silkworms is comparable to that of decayed leaves observed at 86° Fahr., but considerably higher than what these manifest at 59° to 68° Fahr. Leaves kept in the dark, moreover, absorb more oxygen than they emit carbonic acid, and they continue to emit carbonic acid in an atmosphere deprived of oxygen. When carbon burns and gives carbonic acid, a certain quantity of heat is brought into play, and that heat is utilised, according to MM. Deherain and Moisson, for the formation of vegetal matter necessary to the growth of the plant.

M. LASÈGUE ON THE THERAPEUTIC USE OF WARM BATHS.—M. Lasègue thus summarises the rules which should regulate the administration of warm baths, in the *Archives Générales de Médecine* for Nov. 1874. He says that no one should remain in a warm bath longer than from twenty to thirty minutes at the utmost. The temperature of the bath at the time of getting into it should be lower than when the patient leaves it, whatever may be the degree of heat attained. The increase of the temperature should be gradual and regular. The best maximum heat is 48° Cent. (118.4° Fahr.), but 45° Cent. (113° Fahr.), is that most generally used. This degree of heat is easily tolerated if precautions be taken to avoid the sensations produced on the portions of the body not immersed in the bath, by the vaporisation of the water, and the maximum degree of heat be not kept up above eight or ten minutes. It is highly advisable to give as careful directions for the administration of baths, when personal superintendence cannot be given, as for the administration of any other therapeutic means; and the following formula should be filled up: 'Both time and temperature at the beginning . . . ; temperature at the end. Increase . . . degrees every five minutes. The bath to be repeated every . . . during . . . weeks.' When

the patient comes out of the bath he should be put to bed, and he soon regains, not his true temperature, which has not varied much, but his apparent temperature, which may be summed up in this fact—he should not be aware whether he is cold or warm. Generally a passing perspiration comes on, which must not be encouraged. It is best to leave the patient alone and not to interfere either to prolong or to abridge the effects of the bath by artificial means. M. Lasègue has applied these hot baths administered in this way to the treatment of chronic rheumatism going on to deformity, and the excellent results he has obtained from this treatment induce him to believe that the temperature plays an important part in the medicated baths recommended for this disorder.

THE HAMPSTEAD HOSPITAL QUESTION.—It is always satisfactory when unenlightened selfishness receives a check, and so we heartily congratulate Mr. Sclater Booth, and still more the inhabitants of north London, on the wise and firm tone of his reply to the Hampstead deputation, who desired to deprive the sick poor of the metropolis of one of their most needed asylums. The means of early isolation of patients stricken with fever is one of the most urgent necessities of every community. It is more directly and immediately the great need of the poor. For the fever-patient in the poor man's home is in immediate contact with all the family, and becomes a burning focus of disease, from which contagion radiates far and wide. Indirectly, the rich are considered not very much less than the poor, for fever which is housed in the home of the workman or workwoman spreads in innumerable channels of daily service to the homes of the rich. The opposition to the Hampstead site was unsupported by a title of evidence which could have weight with an impartial and judicial observer. It is an excellent site, sufficiently isolated, and within close range of the districts it is intended to serve. A tolerably extended experience has shown that a fever-hospital, instead of being a source of danger to the district in which it stands, lightens the fever-rate of that district. This was the experience of the surrounding district of the London Fever Hospital in the Liverpool Road. The explanation is not far to seek. The means of isolation being near at hand, the cases of fever are more promptly removed from the crowded rooms where they become sources of wide-spread infection. Hampstead Heath will not suffer, unless it be from the effect of the ill-advised slander, and the burlesque horror of the placards by which the party, whom the deputation represented, have sought to identify the heath with 'typhoid-fever,' and to make a death's head its emblem.

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The London Medical Record.

WEDNESDAY, DECEMBER 23, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON THE PARALYSIS OF CHILDREN ACQUIRED DURING DELIVERY. BY DR. SEELIGMÜLLER, OF HALLE.*

The form of paralysis which is here treated of was, as far as I know, first described by Duchenne de Boulogne (*De l'Électrisation localisée*, 3^{ème} édition. Paris, 1872) and is classified by him in a special group under the head of 'Paralysies Obstétricales Infantiles,' (*inter partum paralysis*). The number of recorded cases, as far as I have been able to ascertain, is very small, and not in accordance with the relative frequency of the disease, which, from the experience of Duchenne, and the statement of Professor R. Volkmann, is by no means rare. In textbooks and works on nervous affections, facial paralysis is only mentioned, arising from the pressure of the blade of the forceps on the trunk or branches of the facial nerve.

This paralysis is frequently enough seen, but is also frequently overlooked, as it is only perceptible when the child cries; and in most instances it ceases spontaneously during the first days of delivery without leaving any trace. Its pathogeny is very simple; the blade of the forceps presses on the trunk of the facial nerve or one of its branches, and causes an arrest in the excitability of the affected nerve-fibres, and consequent paralysis of the facial muscles supplied by them. That it is not always the whole facial nerve, but sometimes only one of its branches that is affected, is shown in a case observed in the lying-in clinic in Halle, and related by J. Cieslewicz in an inaugural dissertation (Halle, 1870). A child was delivered by the forceps, the pressure of the blade of which caused gangrene over the right angle of the lower jaw. The child exhibited facial paralysis of the right side, limited, however, to a few branches, those supplying the levator labii superioris alæque nasi, the levator anguli oris, and the zygomatici. Corresponding with this partial facial paralysis, the mark of the blade was found at the angle of the lower jaw, and not, as is usual, at the external ear, where the trunk of the facial nerve makes its exit.

Paralysis, in all cases produced in this way, can only be on one side, as the other blade of the forceps is applied over the frontal bone.

As has been already stated, these paralyses generally recover spontaneously during the first few days of infant life. In the cases quoted by Cieslewicz, one recovered by the third day and another by the sixth day; in a case cited from Osiander, recovery did not take place until the end of three months. In many of these cases, however, the paralysis is

permanent. Among others, Duchenne relates one which happened in a little girl of five and a half years, another in a girl of fifteen years; both of whom at those ages suffered from well-marked facial hemiplegia, which were notoriously produced by the forceps. In both instances the medical attendant and relatives had in vain waited for spontaneous recovery. When the patients were brought to Dr. Duchenne, all chance of cure by electricity was lost. The application of the forceps may produce, besides facial paralysis, paralyses in other nerve regions; e.g. paralysis of one or other of the upper extremities through pressure of the apex of the blade of the forceps on the brachial plexus. Of cases belonging to this form, the one most carefully observed, and consequently the most complete, is that of Dangau (*Bulletin de la Société de Chirurgie*, tome ii.). An eclamptic primipara was delivered by forceps, with moderate difficulty, of an apparently dead child, in which Dangau, thirty-six hours after delivery, observed facial paralysis of the left side, and at the same time motor paralysis of the left upper extremity. On the left side of the neck there was a nearly linear abrasion about 0.4 inch in length, along the outer border of the trapezius, produced by the right blade of the forceps; which in this way had injured the brachial plexus, and at the same time compressed the facial nerve at its exit from the stylo-mastoid foramen. The child died eight days after birth.

Guéniot (*ibid.* 1867) met with a very similar case. The facial paralysis, however, was absent. Twenty days after birth a slight improvement was perceptible in certain movements—the movement of the fore-arm upon the upper-arm; but the paralysis of the deltoid continued. The child was then lost sight of.

A third case was observed in Depaul's clinic. A primipara was delivered by the long forceps of an apparently dead child, considerable force being used. On the right side of the neck, where the neck and breast meet, at the anterior border of the trapezius, there was a blue abraded mark about 0.4 inch across, caused by the right blade of the forceps. When the child was eleven days old, the mother noticed that it never moved its right arm. The limb lay immovable along the trunk of the child; the fore-arm was extended, in a state of pronation; the fingers were flexed on the palm; these, as also the hand in a less degree, moved with fair freedom. The arm was completely powerless; if raised, it fell down like a lifeless mass; if the fore-arm were flexed, it immediately fell back to its former position. The contrast with the left arm was very striking. The sensibility of the paralysed arm was not at all diminished. If the skin were pricked or pinched, the entire right shoulder could be seen to move; only the arm remained inert, the upper arm, however, more so than the fore-arm, the latter exhibiting some imperfect movements. The shoulder was in nowise disfigured, showed no alteration in form, and was as lowly set as the other. The arm was not larger than the other; there were no signs of luxation, fracture, or contusion. There was certainly a complete outside and quite localised paralysis of the arm. The deltoid was entirely paralysed, the other muscles of the upper arm partially so. By the twenty-fourth day after delivery, after friction with warm aromatic wine, there was some improvement, the fore-arm could be flexed more, and the fingers were more movable. The

* *Berliner Klinische Wochenschrift*, October 5 and 12, 1874.

child was not seen later (*Journal für Kinderkrankheiten*, 1867, Band xlix.)

The case of bilateral paralysis, mentioned by Duchenne and others as observed by Smellie, I have not been able to discover in that author's works. More frequently, however, paralysis of one or both upper extremities is the result of difficult extraction, particularly in breech-presentations; in cases, therefore, where there has been some severe pressure and dragging on the shoulders. In these instances, in which often the whole strength of the accoucheur is employed, the pressure of the hooked finger, or of the blunt hook, may entail severe bruising of the trunks of the brachial plexus; and in the same way a strong and continuous pull on the shoulders may produce excessive stretching or laceration of the nerves or muscles.

Paralysis arising in this way may be accompanied with fractures or luxations in the region of the upper extremity. These complications are undoubtedly, in many instances, altogether overlooked, especially when they are not brought for medical examination until a long time after their origin. Even in quite recent cases, it is frequently only the practised hand of a surgeon that can diagnose these injuries. They may consist of detachment of the epiphyses of the scapula, or of the humerus at one or the other end; also of fractures of the clavicle, of the upper arm, of the scapula, and that not only of the neck but also of its body (see Case no. 5); finally, of luxation of the head of the humerus, of the sternal end of the clavicle, or of one of the bones of the fore-arm (Case no. 4.) These injuries may either occur singly or in a variety of combinations in the same individual (Case 2).

Respecting the pathological anatomy of the injured soft parts, nerves and muscles, I can find only one necropsy published, viz., that of the above-mentioned case by Dangau. In this instance there was found a slight extravasation of blood into the tissue surrounding the left brachial plexus at its origin. The nerve-fibres forming the plexus from their origin to beyond the scaleni were stained with blood, which was not removable by washing; their consistence was, however, normal. The facial nerve was similarly affected at its exit from the skull, and the surrounding tissues were ecchymosed.

Quite in accordance with this state of things is a communication in writing from Dr. Fritsch. In several necropsies made on breech-cases, he found in the neighbourhood of the shoulder numerous ecchymoses beneath the skin, and conjectured that the same had occurred in the region of the muscles and nerves. That such ecchymoses can alone produce paralysis of the nerves, so that with the disappearance of the extravasation the paralysis also vanishes, the following observation of Dr. Fritsch goes to prove. On the second day after a difficult delivery of the head, he discovered in the neighbourhood of the lower end of the sterno-mastoid a distinct baggy swelling (hæmatoma) about two inches broad. The arm was paralysed. With the complete disappearance of the swelling perfect movement returned. In this case, the paralysis appeared to be entirely dependent upon the pressure of the extravasated blood on the brachial plexus.

We will now more minutely describe the uncomplicated paralysees of the upper extremities. In the majority of cases, the attitude and the functional disturbances are the same. The typical form in nearly all cases is the following. The paralysed arm hangs

down motionless by the side of the trunk; in chronic cases, where the deltoid is already much atrophied and elongated, it is like a closely hung doll's arm. The head of the humerus is rotated inwards to its extreme extent; the triceps being thrown forwards. The position of the hand is most striking; it is in a state of excessive pronation, the arm lying along the side of the body, with the palm of the hand looking outwards; and in the most usual position of the arm, that of moderate flexion at the elbow, the radial border of the hand with the thumb does not look forwards and upwards, but the ulnar border, with the little finger, assumes that position. The function of the hand is, in consequence, much interfered with, although, as not unfrequently is the case, the fingers retain their freedom of movement. If a riding-whip, for instance, be placed in the hands of the child, it is held firmly; but, while the handle is held by the radial border of the hand, the whip-end and lash looks sideways and upwards from the ulnar border, and any movement of striking with the whip is evidently impossible. The active seizure of an object with the paralysed arm is impeded; if directed to lay hold of a stick, the child first fixes the object with his second hand, and then places it in the crippled hand. This maximum rotation of the head of the humerus, with its enforced abnormal position of the hand, may persist throughout life, and reduce to a minimum the use of the hand, even when there is complete power of movement in its individual parts. (Case 2).

The abnormal rotation of the upper arm depends entirely upon paralysis of the infraspinatus muscle, and therefore of the suprascapular nerve that supplies it. The infraspinatus alone rotates the arm outwards; consequently, when it becomes paralysed, its powerful antagonist, especially the pectoralis major, and also the subscapularis and latissimus dorsi, rotate the arm inwards. That the infraspinatus is really paralysed, has been conclusively proved by faradisation. The paralysis of this muscle during parturition may, as occurs in most cases, arise from pressure on its supplying nerve (suprascapular), or from direct pressure on the muscle itself. Other muscles in the region of the shoulder may be paralysed; for instance, the deltoid, and also not unfrequently the biceps and brachialis anticus. From the wasting of the deltoid, the head of the humerus sinks downwards, and a hollow appears beneath the acromion; while, in consequence of the paralysis of the flexor muscles, the arm becomes incapable of active flexion at the elbows. In the paralysed group of muscles, faradic excitability is more or less diminished or entirely disappears, sometimes soon after birth, sometimes, as in Case 1, four weeks afterwards. The sensibility of the skin appears generally to be retained.

As regards *inter partum* paralysees of the upper limbs, which are complicated with fractures and luxations, there are cases which at a superficial glance are not distinguishable from the above depicted uncomplicated ones. This is the case where the complications are trivial, such as detachments of the epiphyses, and such like. A severe complication may modify to a considerable extent the above-described typical configuration of the limb. Fractures not unfrequently cause shortening of the hollow bones, as the clavicle and humerus, or an arrest of their growth, or permanent deformities or alterations in position, as in Case 5. The rotation inwards of the humerus is favoured by fracture of the clavicle, Case 1. In Case 4, the luxation of the head of the

radius inwards contributed not a little to the deformity of the fore-arm and the functional incapacity of the hand. In cases where motor paralysis is accompanied by various and severe complications, the sensibility seems generally to be considerably affected. In Case 4 both fore-arms and hands were affected, particularly the left, and in a still higher degree in Case 2, where at the ninth month after birth there appeared to be marked anæsthesia of the fore-arm and hand. I have not, myself, met with a case of luxation of the head of the humerus into the axilla; but, from analogy with what is met with in adults, it may be said that pressure on the brachial plexus would produce paralysis of the arm. Duchenne observed in four children paralysis of the upper extremity complicated with subacromial luxation. Delivery in three cases was difficult, and in all four either the finger or the blunt hook had been inserted into the arm-pit. There was difficult or restricted elevation of the arm, the hand was prone, and the whole arm was rotated inwards; all movements in the opposite direction were difficult or impossible.

Besides those disturbances produced by abnormal positions of the head of the humerus, there are some which have been produced by lesion of the brachial plexus, and in which various muscles have been deprived of their faradic contractility and atrophied.

Smellie gives several cases in his work, *Cases and Observations in Midwifery*, where a persistent paralysis of the arm arose from luxation *inter partum*.

As to the prognosis, it has been proved experimentally, that the younger the animal is the more rapid is the reproduction of the wounded nerve. This experience may indeed be transferred from animals to men; but whether it affords any consolation in the case of *inter partum* paralysed children is another question. In the latter we have to deal not only with lesions of nerves, but likewise with lesions of muscles, and further still, of pressure upon the nerve-trunks from extravasations, etc. Consequently, the restoration of the injured nerve alone in nowise secures recovery from a traumatic paralysis. To leave to nature alone the cure of an *inter partum* paralysis, where there was probably a contusion of the nerves, would be very foolish. My own experience leads me to concur with the opinion of Duchenne, that if left alone, the paralysed muscles rapidly atrophy and degenerate. It is only the earliest possible application of methodical faradisation that can prevent this unfortunate result. In this lies the treatment of *inter partum* paralysis. Even facial paralysis should not be left to spontaneous recovery more than four weeks; and paralysis of the upper extremities a still less time. As soon as a child is five, or at the most six weeks old, a weak current of faradic electricity should be applied for about five minutes, twice or three times a week at first, to each paralysed muscle. Special attention must be paid to the infraspinatus muscle in cases of rotation of the head of the humerus inwards; both electrodes must be directly applied upon the fossa infraspinata. Passive rotation outward of the humerus should never be omitted. At first it seems to give much pain to the infant; later on, to please it. By this means, in the only case (Case 5) brought to me at the proper time for faradisation, a very satisfactory result was obtained.

In conclusion, I will observe that *inter partum* paralyses of the extremities may occur without any fractures or luxations. I am, however, acquainted with only one case of the kind (*L'Union Médicale*, no.

11, 1871) when the child lived to the next day. A primipara was confined of an apparently dead child, on whose feet the midwife had exerted such strong traction, that the necropsy showed complete laceration of the spinal cord and of its membranes had taken place in the region of the sixth and seventh cervical vertebræ. During life the upper extremities showed diminished sensibility and peculiar movements; and the lower, when the child was lying, were quite paralysed.

W. C. GRIGG, M.D.

(To be continued.)

CANTIERI ON THE PHYSIOLOGICAL ACTION OF CANTHARIDES.

Dr. Cantieri, clinical assistant and lecturer on special pathology in the University of Siena, has published in *Lo Sperimentale* for July, August, September, and October, an elaborate article, embodying the results of numerous experiments on the physiological action of cantharides. In the experiments he used various preparations, viz., tincture of cantharides, blistering plaster, and cantharidine. These were used sometimes in poisonous, sometimes in medicinal doses; in some cases they were brought into immediate contact with the blood, and in others with the tissues; and the effects were thus sometimes directly and sometimes indirectly produced. The experiments, which were carried out with the able assistance of Dr. Pico Cantucci, were performed on rabbits, dogs, and frogs; and a number of interesting details are given with regard to the effect of experiments of the following kinds:

Application of cantharides plaster to the axilla of rabbits, the skin having been removed:

Injection of tincture of cantharides into the blood-vessels of rabbits and dogs:

Subcutaneous injection of tincture of cantharides in frogs and in rabbits:

Subcutaneous application of cantharidine in rabbits and frogs:

Application of blisters to the belly of rabbits:

Internal administration of cantharidine and tincture of cantharides to frogs:

Injection of tincture of cantharides into the hearts of rabbits.

Dr. Cantieri gives each form of experiment in detail, and describes and comments on the results obtained; we can, however, only give his general conclusions, which are as follows.

1. Cantharides, when introduced into the animal organism, produces changes in the mass of the blood; it destroys and corrugates the red corpuscles when brought into direct contact with them, but only corrugates them when it reaches them by absorption.

2. It diminishes the contractile force of the heart and blood-vessels, and thus reduces arterial tension; it increases the frequency and the rapidity of the beats of the heart, increases the temperature of the body, and leads to wasting and general debility—all phenomena indicating the existence of a true and special fever.

3. Cantharides induces hyperæmia and stasis in various organs: and, if applied in a large dose, true inflammation. In the course of his experiments, Dr. Cantieri met with hyperæmia of the cerebrum and of the spinal cord; in the former, softening was slight; in the latter, it reached an advanced stage, being greater in the dorsal and lumbar enlargements,

especially the latter. Hence arose paralysis of the posterior limbs in dogs, in rabbits, and in frogs; and in the last-named animals, reflex power was also lost.

4. Hyperæmia of the membranes of the nervous centres, produced by cantharides, is always well marked at the base of the skull in the situation of the medulla oblongata, whence probably arise, in rabbits and in dogs, great frequency of respiration, and increased rapidity of circulation with occasional intermittence.

5. Cantharides always induces hyperæmia, or even true inflammation of the uropoietic and genital apparatus; giving rise to desquamation or parenchymatous nephritis, sometimes with albumen in the urine. It stimulates the sexual orgasm, and may produce abortion.

6. Cantharides administered internally produces, besides the morbid conditions already mentioned, a true gastro-enteritis, with extreme redness and ulceration of the mucous membrane of the stomach, and yellow mucous diarrhœal discharges. Occasionally, even when injected into the veins, if it do not produce ulceration, it occasions hyperæmia of the gastro-intestinal mucous membrane and frequent diarrhœa in dogs, frogs, and rabbits.

Dr. Cantieri then proceeds to comment on the medicinal application of cantharides, as a revulsive and rubefacient. We will give his views on this subject in a succeeding number. A. HENRY, M.D.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

CARVILLE ON THE PHYSIOLOGICAL EFFECTS OF JABORANDI.—At the meeting of the Biological Society of Paris on November 28, M. Carville communicated the results of some experiments on the action of jaborandi, made by him in M. Vulpian's laboratory.

These experiments were made from a purely physiological point of view, with the intention of studying the mechanism of salivary hypersecretion in the submaxillary gland in dogs. The facts noted up to the present time show that an injection of twenty cubic centimètres (a little more than five drachms) of water, in which two grammes (thirty grains) of jaborandi leaves had been infused, into the crural vein of a dog which had had curara administered to it, and then been submitted to artificial respiration, brought on an excessively copious secretion of saliva, in less than a quarter of an hour. By means of a cannula inserted into Wharton's duct, the saliva may be collected both before and after the injection, during a quarter of an hour; and it was found that this secretion increased to four cubic centimètres under the influence of jaborandi; the saliva likewise becoming thick, thready, and opalescent. A subcutaneous injection of five centigrammes of atropine immediately stops this secretion. Division of the lingual nerve, and of its branches going to the submaxillary gland, has no effect whatever on the action of jaborandi on this gland.

Jaborandi has an analogous action on the urinary excretion; a cannula placed in one of the ureters shows that this excretion was increased in the proportion of from one to two cubic centimètres.

Experiment has also demonstrated that intravenous injection of water in the same proportion has

no influence whatever on the salivary secretion. From four to five hundred grammes are required to obtain a very temporary and trifling increase of salivation. In fine, the experiments hitherto made show that the action of jaborandi on the submaxillary gland of the dog does not affect the vaso-motor systems.

M. Carville proposes in further researches to resolve the question, whether this action takes effect on the peripheric extremity of the nerves of the gland, or on the secretory elements of that organ. M. Bernard drew attention to the fact that the conclusion to be drawn from M. Carville's experiments would be, that jaborandi does not act on the secretory nerve of the submaxillary gland. It may, however, act on the sympathetic nerves, inasmuch as the salivation observed after section of the cord of the tympanum was, in M. Carville's experiments, exactly like that produced by cervical sympathy. M. Bernard has shown that the saliva in these cases is viscid and rather copious, and M. Carville has found these characteristics present in his experiments.

M. Rabuteau remarked that he inclines to believe that jaborandi does not act on the nervous system, but on the striped muscular fibres. In the case noted, it must have been the muscles of the arterioles which were paralysed, since there are no striped fibres in any other part of the parotid gland.

PICARD ON IRON IN THE SYSTEM.—In a note to the French Academy (*Comptes Rendus*, Nov. 30), M. Picard says he has begun to study the variation of substances in the blood. He takes up the case of iron; and first, the limits within which it varies. The animals were chiefly dogs; and in some cases, when the blood was taken, they were in an indeterminate condition; in others, conditions were experimentally produced, in order to exaggerate the phenomena. All the animals were without food on the day of analysis; and the analysis was made on defibrinated blood. The following numbers show the quantity of iron per 100 cubic centimètres of blood in several cases; young, very fat dog, 0.092; adult dog, 0.065; another, 0.0565; dog weakened by previous bleedings, 0.041. These give the extremes; and it appears that the iron in a dog's blood may vary from one to two or even more.

Another question was, what is the signification of these variations? Guided by facts previously known, the author compared, in two specimens of the same blood, the quantity of iron per 100 cubic centimètres of blood, with the quantity of oxygen which 100 cubic centimètres, saturated with this gas, liberated *in vacuo*; the measure, as he calls it, of the respiratory capacity of the blood. It appears, from his table, that these two quantities vary in a parallel manner, and that their relation is sensibly constant, and equal to 2.3. This is equivalent to saying that the iron sensibly measures the respiratory capacity of the blood. (Here are some of the numbers: Iron, 0.090, 0.067, 0.048; oxygen, 0.0397, 0.0268, 0.0213.)

Thirdly, he inquired whether there was not an organ which might be regarded as a place of reserve for iron; and after examining several glandular organs, he found the spleen to contain, under ordinary conditions, a much higher proportion of iron than that in the blood. Thus the iron for 100 cubic centimètres of spleen is represented as follows: Dog, 0.24; dog, 0.22; ox, 0.15; cat, 0.34. In the liver, which, next to the spleen, contained most iron, the

proportion never exceeds that in the blood, and is rarely equal to it. (These researches were conducted in M. Cl. Bernard's laboratory.)

WEISKE AND WILDT ON THE FORMATION OF FAT IN THE ANIMAL BODY.—Voit and Pettenkofer have shown that in the dog, the body fat arises from the albumen taken in the food, and even when this is free from fat the carbohydrates take no part in the formation of the fat. H. Weiske and G. Wildt (*Zeitschrift für Biologie*, 1874, vol. x.; abstract in *Centralblatt für die Medicinischen Wissenschaften*, no. 43) treat the same question in herbivora, i.e., omnivora. For this purpose, two swine, from three to six weeks old, were killed, and the proportion of fat in the whole body was estimated, whilst another was fed for half a year on starch and potatoes. The food was weighed exactly each time, and often analysed; the faeces were collected, and by their analysis it was ascertained how much food had been absorbed. It was shown that the food was almost completely digested. We can only cite the results. The 'potato-sow' contained at the end of the experiment 2,2835 kilogrammes of albumen, 7,0138 kilogrammes of fat, 0,4101 kilogrammes of substances free from albumen. The control-animal, which at the beginning of the experiment may be regarded as of the same composition as the animal experimented on, contained 1,014 kilogrammes of albumen, 0,874 kilogrammes of fat, 0,0843 kilogrammes of substances free from nitrogen. There were thus formed during the feeding 1,2425 kilogrammes of albumen, 6,1398 kilogrammes of fat, 0,3258 kilogrammes of substances free from nitrogen; 0,5748 kilogrammes of fat were taken with the food. If we assume that this was directly absorbed, then 5,565 kilogrammes of fat have been formed in the body. The albumen taken in was 14,3244 kilogrammes; of this 1,2425 kilogrammes were stored up, so that 13,0819 kilogrammes remain disposable for the formation of fat. According to Henneberg, this could yield 6,7241 kilogrammes of fat. Thus, even with food very poor in albumen, the albumen taken in would suffice to explain the formation of fat, though, of course, the idea that the carbohydrates might have aided in the formation of fat is not excluded.

ADAMIEWICZ ON THE PHYSICAL PROPERTIES OF MUSCULAR SUBSTANCE.—Albert Adamiewicz, after a large number of experiments, concludes that the muscles of the trunk play a very important rôle with regard to animal heat. This is due to their physical properties.

1. Muscular substance is an exceedingly bad conductor. It conducts heat worse than water. The weak capability of conduction of the layers of the trunk-muscles can be explained in the living animal on physical principles.

2. With the small diathermancy of the muscular substance coincides its greatest power for absorbing heat, which at the ordinary temperature of warm-blooded animals may be placed at four calories.

3. The muscular substance possesses the highest known specific heat of solid and fluid bodies, and exceeds that of water considerably.

Further details are promised.

WM. STIRLING, D.Sc., M.B. (Edinburgh.)

WILDER ON THE ANTERO-POSTERIOR SYMMETRY OF LIMBS.—Professor Burt Wilder (*Proceedings of the American Association for Advancement of Science*, Aug., 1873, published 1874) hopes, by

means of embryology and the study of *Amphioxus*, to prove the existence of a true 'meketopy,' i.e. antero-posterior symmetry, in the vertebrata. He holds that there can be no escape from the conclusion that the anterior digit, or thumb, is the true homologue of the posterior digit, or little toe, and that the little finger is, in like manner, homologous with the great toe. All eminent Americans, e.g. Dana, Wilder, and the late professors Wyman and Agassiz, as opposed to English and continental anatomists, are agreed upon this point.

WILDER ON THE PECTORAL MUSCLES OF MAMMALIA, AND ON THEIR VARIATIONS IN DOMESTIC DOGS.—Professor Burt Wilder (*Ibid.* p. 305), believing that 'there is need of more accuracy in the dissection, delineation, and description of muscles, since at present there is great confusion respecting the nature of true muscular integers, and the basis of muscular homologies,' has been examining the pectoral muscles of mammalia. He prefers the terms *ecto-* and *ento-* pectoralis to those of pectoralis major and minor. The entopectoral is usually much the larger—thus belying the name generally given to it—the exception being found in man, the higher quadrumana, the bat, the bear, and the skunk. Its coracoid insertion is perfectly distinct in the Canidae and Felidae. The ectopectoral tends to separate into superimposed laminae, and, having an outward direction, it acts as an *adductor humeri*, while the entopectoral acts chiefly as a retractor of the shoulder, its fibres taking a direction obliquely from within, forward, and outward. It tends, moreover, to form fasciculi, corresponding in number to the costo-sternal articulations involved in its origin. In addition to the main pectoral mass, there are usually found one or more muscular elements, having variable relations. These are probably differentiated portions of the main pectoral mass.

In dissecting the pectoral muscles in nine different breeds of domestic dogs, Professor Wilder found a great uniformity in these organs; 'certainly no such differences as might be inferred from the external appearance of the breeds.' J. C. GALTON.

PATHOLOGY.

ROBIN ON EXPERIMENTAL SEPTICÆMIA.—Some contradictory results having appeared in this field of investigation, M. Robin has anew made fundamental experiments with reference both to the infectious power of putrefied blood compared with that of septic blood, and the septic activity of infinitesimal quantities of these two kinds of blood (*Comptes Rendus*, November 30). He used rabbits, as before; and he points out, as an indispensable condition, that the animals must be placed in free air, and be allowed liberty in all their habits. Wherever he has experimented, he has remarked that the slightest traumatism, in rabbits that are confined, infallibly give rise to disorders that prove fatal (more or less rapidly)—ganglionic congestion, tubercles, enteritis, etc.

A. Putrefied Blood.—Four series of experiments, each on a dozen rabbits, with the blood of a rabbit in full putrefaction, yielded the following results. 1. Injection, under the skin, of a dose of three, or two, or one, divisions of the small Pravaz syringe, caused the death of seven animals in a time varying

from three to six days, with the ordinary symptoms of infection. 2. Inoculation of the same blood with the lancet, killed only one out of nine rabbits, operated on at the same time with the nine preceding. 3. Inoculation of a few small grains of putrefied blood, previously dried, did not produce any result in nine rabbits thus treated. 4. Injection, under the skin, of three, four, and five divisions of the Pravaz syringe, of a liquid obtained by a dialysis of putrefied blood, gave no result in the nine rabbits thus treated. The blood had been left twelve hours in the dialyser, and the exosmotic liquid evidently contained bacteria similar to those of the blood, and traces of albuminoid matters.

A cubic centimetre of putrefied blood (killing rabbits in a quantity filling one to two divisions of the Pravaz syringe), if diluted immediately with distilled water to $\frac{1}{1,000,000}$ or to $\frac{1}{1,000,000,000}$ did not produce any disorder in four rabbits into which M. Robin injected $\frac{10}{27}$ of a cubic centimetre of this dilution. He was not more successful with progressive dilutions from $\frac{1}{20}$ to $\frac{1}{1,280,000,000}$. Seven rabbits were injected with $\frac{10}{27}$ of a cubic centimetre with dilutions of $\frac{1}{20}$, $\frac{1}{400}$, $\frac{1}{8,000}$, $\frac{1}{100,000}$, $\frac{1}{3,200,000}$, $\frac{1}{64,000,000}$, $\frac{1}{1,280,000,000}$. Of the seven, only one succumbed after three weeks, but without presenting septic alterations in the blood. The conclusion from these forty-seven experiments is, that putrefied blood, to be toxic, must be introduced into a rabbit's system in a proportion equivalent at least to one division of the Pravaz syringe; inoculations with the lancet, of infinitesimal dilutions, dialytic dilutions, do not produce fatal disorders.

B. *Infectious or Septic Blood*.—Having got, by successive inoculations, a blood decidedly septic, the author made similar experiments. Nine rabbits, into which he injected three, two, and one divisions of the Pravaz syringe of septic blood, all died in a time varying between sixteen and sixty-seven hours, presenting all the symptoms of septicaemia. Of seven rabbits inoculated with the lancet or the cataract-needle, seven succumbed like the preceding in less than four days; the two which survived did not show the least febrile disorder, and the author was led to suppose that there had not been real inoculation. Inoculation behind the ear of some powder of dried putrid blood, was fatal to six out of seven rabbits thus treated.

Putrid blood, dialysed during twelve hours, yielding a liquor slightly albuminoid, and containing microzymes, etc., in large numbers, was used to inoculate a series of nine rabbits, in a dose of 1, 2, 3, 4, 5, 6, 7, 8, 9 divisions of the Pravaz syringe. Of these nine animals, the last three succumbed with flagrant symptoms of infection; the sixth, fifth, and third had only slight fever; the first two showed no functional disorder.

Of six rabbits, into which were injected $\frac{10}{27}$ of a cubic centimetre of the following septic dilutions: $\frac{1}{8,000}$, $\frac{1}{160,000}$, $\frac{1}{3,200,000}$, $\frac{1}{64,000,000}$, $\frac{1}{1,280,000,000}$, $\frac{1}{25,600,000,000}$; only the first succumbed, after twelve days, with some septic symptoms; the others did not show the least functional disorder.

‘It thus appears that septic blood acts much more energetically than putrefied blood; that the “septicity” increases with the successive generations; that it remains the same, however small the quantity of inoculated blood, provided the inoculation is made without any mixture; and it is exceedingly probable

that the failures with infinitesimal or dialytic dilutions occur because the septic substance is not well mixed, and is not dissolved in the distilled water.’

FELTZ ON SOME EXPERIMENTS IN BLOOD-POISONING.—Feltz has found, as the result of forty-seven experiments, that putrefied blood introduced into the animal system must, in order to be toxic, be in quantity at least equal to one division of Pravaz's syringe. Inoculations by lancet, infinitesimal dilutions, dialytic dilution, do not give rise to mortal accidents. With quite fresh infectious or septic blood, it was found that blood thus contaminated is much more energetic in its action than putrefied blood; and that this is true, however small the quantity of blood inoculated. PAGET HIGGS, D.Sc.

RECENT PAPERS.

On Deuteropathic Amyotrophies; General Subacute Paralysis. By M. Charcot. (*Le Progrès Médical*, December 12.)
Contribution to the Pathological Anatomy of the Pancreas. By MM. R. Lépine and Cornil. (*Gazette Médicale de Paris*, December 12.)
Note on Two Cases of Progressive Muscular Atrophy in Childhood. By M. Landouzy. (*Gazette Médicale de Paris*, December 12.)
On Digitalis Delirium and Coma. By Dr. Durosiez. (*Gazette Hebdomadaire*, December 4.)

MEDICINE.

DUCHENNE DE BOULOGNE ON PHOTOGRAPHIC REPRESENTATIONS OF THE MINUTE STRUCTURE OF THE HUMAN NERVOUS SYSTEM.—Under this title we have a communication made by Dr. Duchenne to the Society of Medicine in Paris, on the occasion of his presenting an album containing sixty photographic representations of brain-structure. The part of the nervous system to which the communication is particularly devoted is the medulla oblongata. The object Dr. Duchenne had in view in selecting this part of the nervous centres, was the hope that he might therein find the explanation of the symptoms observed in cases of glosso-labio-laryngeal paralysis.

It was not until the author had been enlightened by Dr. Lockhart Clarke on the nature of the appearances he obtained, that he was able fully to comprehend their importance, and by their means to render more complete the morphological particulars already given by Dr. Clarke.

The symptoms of this particular form of paralysis, of which Dr. Duchenne was desirous to find the physiological explanation, are described as follows.

1. Glosso-labio-laryngeal paralysis primarily affects the pronunciation of the lingual consonants, later on that of the labials, and progressively the entire power of articulation. 2. About the same time deglutition is affected and becomes more and more impaired. 3. The voice becomes nasal, and the lateral movements of the lower jaw become paralysed. 4. In a more advanced period of the disease, the expiratory power is weakened and utterance diminished. 5. In the last period, the action of the heart is sometimes so profoundly affected that it may suddenly cease.

To account for these symptoms, Dr. Duchenne considered that it was necessary that one and the same lesion should be found to attack the origin of

the following nerves; the hypoglossal, the motor nerve-fibres of the velum palati, those of the lips, the spinal accessory, and perhaps the pneumogastric. By means of his photographic representations of several transverse sections of the bulb, Dr. Duchenne has been enabled to demonstrate the connections existing between the nuclei of these different nerves, and thus to prove the following occurrences. 1. The morbid process generally at first attacks the nucleus of the hypoglossal nerve, occasioning difficulty in the pronunciation of the lingual consonants. 2. The lesion, extending in the neighbourhood of the hypoglossal, attacks the inferior cells of the nucleus of the seventh pair of nerves, rendering the pronunciation of labials a matter of difficulty. 3. The same morbid process spreads to the spinal accessory nucleus, and thus progressively weakens bronchial expiration and phonation. 4. The demonstration of the position of the originating nerve-cells of the motor branch of the fifth pair of nerves, low down in the bulb, accounts for the nasal sound of the voice, also for paralysis of the muscles of the velum palati; and in particular, for the paralysis of the pterygoid muscles. 5. The extension of the lesion from below upwards, and the inclusion of the nucleus of the vagus, will account for the disordered action of the heart, and finally for sudden death. 6. The result of this inclusion of the nucleus of the pneumogastric during the gradual ascent and progress of the lesion will account for the fact that the muscles of the face, and other parts supplied by nerves from a point higher than the origin of this nerve, are not affected. It should, however, here be noted that Dr. Duchenne is not explicit on the nature of the lesion, or the mode in which he traces it from part to part in its alleged course. Starting from the results thus obtained, Dr. Duchenne alleges, regarding these photographic representations, that they show the structure of the anatomical elements as they appear on the field of the microscope, and therefore their exactness cannot be doubted; that they confirm and strengthen the observations of Dr. Lockhart Clarke; and lastly, that they assert superiority for the employment of photography, whereas other methods of microscopical drawing are necessarily only skeleton representations of the real appearances. W. KESTEVEN, JUN.

METTENHEIMER ON THE ETIOLOGY OF THE LOBULATED LIVER.—This paper was originally read on January 24 last, before a society at Schwerin, but now constitutes a large portion of Betz's *Memorabilien*, xix Jahrgang, 8 Heft. The preparation to which it refers was a typical specimen of lobulated liver, from a single lady aged thirty-eight. Mettenheimer remarks that most diseases of the liver can be more thoroughly studied in private practice than in hospital wards, on account of their chronic course. When first seen, the patient only complained of frequent severe headaches, compelling her to lie down, with which she vomited bile. These attacks seemed hereditary; all her living sisters are subject to severe hemicranial headaches. Her father died young of apoplexy. The mother died of 'consumption' at sixty-one years of age. The patient was delicate from childhood, but had never kept her bed. Her catamenia were always scanty and somewhat irregular, but never ceased till just before death. From her twentieth to her thirtieth year she was a governess. When about twenty-six she was chlorotic, and suffered from small ulcers in the left leg, the scars of which were yet visible. These lasted some time, but she entirely recovered, and never kept her bed

on their account. On being consulted the first time, vomiting induced Mettenheimer to examine the abdomen. The liver then extended about four finger-breadths below the margin of the ribs. It felt very hard, but smooth, not nodulated, not at all tender, and its upper border was normal. She drank very strong coffee, and indulged in sauces and highly seasoned meats. She was thin, but had a good fresh colour. The bowels were mostly constipated, but this seemed not to trouble her. She was rather excitable, and was able to indulge freely her gastronomic tastes, whilst exposed to frequent causes of vexation. These things probably had a share in causing her complaint. Passing over the remedies used for her sick headaches, vomiting, etc., it is to be noted that the hitherto smooth surface of the liver became somewhat suddenly elevated into nodules of a bullet-like form, and about the size of a pigeon's egg; there was a febrile movement about the same time. These nodules were easily felt in the epigastric region, and were very painful. Local blood-lettings acted famously, as stated by Hensch (Klinik der Unterleibskrankheiten, Berlin, 1863, 3 Aufl. s. 350), for the nodules became smaller and less tender. She afterwards benefited still further by a 'cure' at Carlsbad—so that the nodules were scarcely to be felt, except at the edge of the liver. Suspicions of carcinoma were entertained. Her emaciation favoured this. Mettenheimer had previously noticed the development of cancerous tumours in inflammatory attacks, and found them relieved by local blood-lettings [see his *Nosol. und Anatom. Beiträge zu den Greisenkrankheiten*, s. 95, 96.] The success of the Carlsbad 'cure,' more striking than in Oppolzer's case (Hensch, *loc. cit.* p. 148), raised a doubt as to malignancy. She gained flesh and felt pretty well. But the liver remained much enlarged, her bowels were constipated, and she had bilious vomiting. This was four years before her death. In the early spring of every year, her symptoms became aggravated; the feet and legs became œdematous—she had dyspnoea, etc. Local blood-lettings again relieved, but in the third year she once more went to Carlsbad—was relieved—but the state of the liver was still the same. In February, 1873, she became more emaciated, the catamenia were suppressed, the urine scanty, though it never became albuminous, even up to death. Ascites set in, and tenderness and pain over the liver grew almost unbearable. Morphia gave her more relief than any other treatment, especially checking rigors and coldness of the extremities, from which she suffered if she did not take morphia. The conjunctivæ were very slightly tinted, but her face acquired that brownish-green coloration, deeper as she grew thinner, which is so characteristic of this disease. There were copious perspirations every night. Acupuncture gave little relief, therefore paracentesis abdominis was performed; the enormous quantity of two and a half eimer (nearly twenty gallons) of clear yellow serum being evacuated. A second tapping, after three weeks, removed nearly eight gallons. Some improvement followed this, and the patient even began to walk about. Though resembling a living skeleton, she enjoyed life very fairly by the constant use of morphia. Death occurred eight months after ascites set in; she had then been tapped three times. Before death she suffered extreme pain, had aphthæ, lastly a rise of temperature, then coma, and in this she died. The *post mortem* examination

showed numerous adhesions between the abdominal viscera; the liver, pancreas, stomach, duodenum, and diaphragm were all closely adherent to each other. Numerous coagula and strings of fibrin were found, with turbid serum and other signs of chronic peritonitis. The liver was of very considerable size, occupying chiefly the right hypochondrium. It was an unshapely mass, composed of knobs of the size of apples (*sic*), separated from each other by strong connective tissue, which also interlaced them. The left lobe of the liver was a mass of the size of a fist, connected with the rest of that organ only by a short stalk. The enlarged spleen and some coils of intestine filled the left hypochondrium. The parenchyma of the liver was extraordinarily firm, cut with difficulty, was of dark-brown colour, somewhat marbled, rich in blood and pigment. The contracted gall-bladder was difficult to find, and contained numerous coffee-coloured calculi, of the size of a pin's head, or even smaller, and quite soft. The spleen was indurated, of the size of two fists. The kidneys were congested only. The uterus and ovaries were normal. The mesenteric and other abdominal glands were pigmented. Both pleural cavities contained serum. There was no tubercular disease of the lungs, nor cavities in these organs. The heart was diminished in all directions (microcardia). The right ventricle of the heart was as thin as paper. There was concentric hypertrophy of the left ventricle; it would hold scarcely a thimble-full of blood. There was slight atheroma of the bases of both aortic and pulmonary valves. There was no other valvular disease.

In commenting on the case, Mettenheimer considers it to have begun in a localised hepatitis—which afterwards led to the formation of nodules—or lobulation. [Fig. 4, p. 75, and fig. 5, p. 85, of vol. ii. of Dr. Murchison's translation of Frerichs on the Liver, New Sydenham Society, give a good idea of the 'lobulation' or nodulation just described.] He remarks that anatomists, such as Rokitsansky, draw a sharper line of demarcation between this and the common form of cirrhosis than do clinical observers such as Frerichs, whose eighteenth case the one above resembles [*loc. cit.*, p. 85]. The commonest cause of this condition is syphilis, as alcohol is of the cirrhotic liver. The two authorities quoted, and Budd also, agree in this. As regards our case, there were no proofs of this. She had intact and virginal genitals. The only symptoms in her history the least suspicious were the ulcers on the legs. They were, however, regarded as varicose, and healed easily by simple remedies. The false membranes at the apices of the lungs are found in other diseases besides syphilis. May the syphilis have been congenital? There is no evidence, save the negative statements of her sisters. Both parents are long since dead. The strong coffee, pickles, spiced comestibles, and frequent mental perturbations of our patient, were doubtless the cause of her attacks. He does not think the nodules were ever abscesses, only hyperplastic formations. Probably Oppolzer's case of cancer, ameliorated at Carlsbad, resembled this, though Virchow (*Krankhafte Geschwülste*, vol. ii. p. 428) seems to think it a gummatous formation. There was no waxy degeneration in the spleen or liver, or of any other organs of our case. Ascites is not easy to recognise in an early stage; it therefore seems unwise to lay much stress on the priority of this or of oedema of the feet, as a diagnostic sign of liver disease, or of cardiac and pulmonary mischief.

The microcardia was probably partly congenital, partly a symptom common to other muscles, which were much wasted all over the body. Concentric hypertrophy of the left ventricle is not uncommon in cases of small heart. (See Bouillaud; and Mettenheimer's *Beobachtungen über die typhoiden Erkrankungen der französischen Kriegsgefangenen in Schwerin*, Berlin, 1872, s. 49). It is notable, that till just before death, there was never any suppression of bile, nor any abnormal quantity of bile-pigment in the urine. W. BATHURST WOODMAN, M.D.

RECENT PAPERS.

- On the Treatment of Tapeworm. By Dr. Cobbold. (*Lancet*, December 5.)
 On Disturbance, Contusion, and Compression of the Brain. By M. Bergeron. (*France Médicale*, December 2.)
 On the Management of Delirium. By Dr. Milner Fothergill. (*Practitioner*, December, 1874.)
 On Cardiac Phenomena in Typhoid Fever. By M. Georges Hayem. (*Le Mouvement Médical*, November 28.)
 Cases of Acute Sero-Fibrinous and Purulent Pleurisy. Treatment of Pleurisy by Thoracocentesis. By Dr. Martineau. (*L'Union Médicale*, November 13, 14, 15 and 24, and December 8.)
 Application of the Cold-Bath System to the Treatment of Cerebral Rheumatism. By Dr. Raynaud. (*L'Union Médicale*, December 5.)

SURGERY.

SÉDILLOT ON TREPHINE-WOUNDS AND THEIR DRESSING.—Means of medical treatment rest generally on exact observation, which, however, is often isolated and partial, and thus the same problems recur at different times to be studied under better lights. The influence of air upon the human patient, sick or wounded, has been a subject of constant research, it may be said, since the time of Hippocrates; and now infectious, contagious, putrid, gangrenous, and pestilential affections, are attributed to miasms or other toxic and parasitic elements contained in the atmosphere, and determining local or epidemic accidents of very variable extent and gravity. Surgery has recognised from all time the action of the air upon wounds, and the *Académie de Chirurgie* at the end of the last century chose for its prize-subject the question—'On the Influence of the Air in the Treatment of Wounds.' The application of balsams, unguents, aromatics, camphor, certain metallic preparations, alcoholates, camphorated *eau-de-vie*, found its partisan in each case. These questions, however, have not ceased to be discussed, and we commence at last to comprehend the high importance of media, the knowledge of which is indispensable to a rigorous appreciation of biologic phenomena.

Such was the state of surgery relative to the dressing of wounds, when the experiments of Pasteur led to the supposition that ferments were the sole cause of infectious complications, and that it would be possible to remedy these by sheltering the wound from the atmospheric protozoic elements. The question was of too great interest not to be at once studied.

The most able experimentalists (and it is sufficient to cite the name of M. Dumas) have compared the action of numerous substances which prevent or arrest fermentation. Carbolic acid, recommended by Dr. Déclat, who, more than anyone, has generalised its use, and by Mr. Lister of Edin-

burgh, whose carbolic dressings are universally known, was declared a most powerful antiseptic. Phenol, coal-tar, tar, alcohol, alcoholates, hyposulphite of soda, various slightly caustic solutions, etc., have been tried and recommended.

Filtration of the air by carded cotton, proposed by Pasteur as a means of purification from panspermic germs, has become a prophylactic method against traumatic infection; and now that these modes of treatment are multiplying, we may discuss and compare their advantages.

The success of trephining seems due to antiseptic dressings, to washing (in Sédillot's special cases) the wound with an aqueous solution of hyposulphite of soda and of carbolised alcohol (one in ten), and applying a plaster composed of thirty parts of glycerine and one of carbolic acid, with pulverised chalk mixed to a semi-liquid paste, spread upon tinfoil and covered by a bandage.

The problem of this treatment of wounds presents four factors, whose combinations are very complex:—

1. The known or supposed ferments:
2. The media in which these ferments are developed:
3. The state of the organism and of the traumatism:
4. The antiseptics intended to prevent and combat local and general effects of ferments.

1. There have been classed, according to Cagnard de Latour and Turpin, a large number of ferments; but there are still among the unknown those supposed to be the cause of infectious and contagious maladies, such as erysipelas, hospital fever, carbuncle, etc. The origin, organisation, modes of propagation, and multiplication of the different species, their varieties of action or of nocuity, are equally open questions. Septicæmic blood, prepared by M. Davaine, killed some of the animals experimented with even in infinitesimal doses; and if atmospheric ferments are so redoubtably the source of traumatic complications, it is none the less true that the most dangerous wounds are habitually without accident when the surrounding air is not vitiated. May we not then conclude that there is little danger of panspermic changes in the normal conditions of life? This danger arises with the courses favourable to the multiplication of fermentary corpuscles.

2. The consideration of favourable or specific media occupies an important place in the problems to be solved. Heat and humidity, decomposition of animal and vegetable matters, large collections of living beings (towns, hospitals, camps, etc.), confined air, all play an important part in the production and propagation of epidemics.

3. Men offer to these ferments resistance that varies greatly, with race, sex, rank, idiosyncrasy, age, constitution, state of health, etc. Certain individuals are particularly accessible to morbid causes. The least scratch will determine with one an abscess, with another gangrene and the most deplorable accidents, whilst with others the deepest and largest wounds are very readily healed. Wounds, according to their nature, their causes, and their irregularities, are not exposed to the same chances of infection. Thus the conditions to be analysed in order to draw certain conclusions and determine error are very complicated.

4. The means of preventing and combating the effects of ferments on wounds form another kind of study. Filtration of the air, the immense pan-

spermic recipient, appears the prophylactic process that is most effectual; whilst the curative treatment comprehends the destruction of ferments by antiseptic substances of external or internal application. If the ferments have already penetrated the organism and render it necessary that we should pursue them there, how are we to destroy them without alteration to the elements with which they are bound up? We may cite, as examples, the success of vaccine against variola, of quinine against certain fevers, of mercury against syphilis; but nothing goes to prove that these maladies are due to ferments, and their generalisation as parasitary ferments, although in itself rational, still requires scientific demonstration.

A dressing for trephine-wounds that has been successfully used by Dr. Sarazin, surgeon-major to the Military Hospital at Bourges, is a solution of ten per cent. of tar in water made alkaline with soda without causticity. This liquid cleanses and rapidly disinfects the wound, which may be covered with a layer of tar and wadding, in two courses, to a finger's thickness. This dressing has been used in a case of amputation of the thigh, two of the leg, three of the breast, a resection of the elbow, one of the knee, and in many cases of wounds by fire-arms, etc. The many cases of resection of the knee successfully accomplished by antiseptic aid, indeed, may be considered scientific evidence of the value of this comparatively recently introduced system of medicine.

PAGET HIGGS, D.Sc.

RECENT PAPERS.

Notes on Cases of Vesical Calculi. By E. Stamer O'Grady. (*Dublin Journal of Medical Science*, December, 1874.)
On the Harmlessness of Puncturing the Liver with the Aspirating Trocar. By Dr. Berenger-Féraud. (*Bulletin de Thérapeutique*, December 15.)

MATERIA MEDICA AND THERAPEUTICS.

GRIFFITHS ON CHEMISTRY IN ITS RELATIONS TO THERAPEUTICS.—In the *Medical Press and Circular*, Dr. W. Handsel Griffiths discusses the relations of recent chemical researches to therapeutics. The researches, which give promise of the most useful results, are:—1. The chemistry of the tissues and secretions; 2. The connection between the chemical constitution of the agent and its physiological action; 3. The chemical changes undergone by drugs after absorption. In 1841, Blake stated that the salts of isomorphous bases have a more or less similar action. In 1868, Dr. W. H. Broadbent maintained that 'substances chemically allied should have similar physiological and therapeutic actions, or any diversity found to exist should be capable of explanation on chemical grounds.' Drs. Crum Brown and Thomas Fraser showed that the physiological action depends upon the chemical constitution as well as composition of a drug. Acetic acid and sugar, and glycocoll and nitrite of ethyl are identical in composition, yet differ in physiological action. They also showed that the action of a substance may be altered by introducing into it a definite chemical change without breaking up its molecule. By adding iodide of methyl to the non-saturated base strychnia, its poisonous properties were greatly diminished. Jolyet and Cahours conducted about the same time similar investigations. By substitut-

ing an organic radical for an equivalent of hydrogen in certain compounds, they endeavoured to determine whether such substitution would modify the physiological action of the compound. They found that, while aniline produced convulsions by exciting the cerebro-spinal centres, ethyl-aniline, methyl-aniline, and amyl-aniline abolished the function of those centres. Rabuteau has recently enunciated the law that metals are more active physiologically, according as their atomic weights are higher or their specific heats are lower. The monatomic metalloids are governed by a law which is the reverse of this. The metals rubidium, tungsten, and molybdenum are exceptions to the law. Dr. B. Ward Richardson has drawn attention to the fact that the number of atoms of carbon contained in an alcohol appears to serve as an index to its activity, as may be seen by comparing the respective activities of ethyl and amyl alcohol. M. Gubler maintains that, 1. Substances when absorbed tend towards their similars or analogues; 2. When a substance cannot meet with its similar or analogue, it must be eliminated; 3. It is eliminated by the channel in which it meets with similar bodies. [M. Coze, of Strasburg, upwards of thirty years ago, enunciated almost exactly similar laws.—See *American Journal of Medical Sciences*, April, 1843, p. 438.—*Rep.*] M. Onimus has found that the interposition of a layer of some albuminous substance, as the white of an egg, between two liquids, often gives rise to electrochemical phenomena, a discovery which may lead to valuable results to therapeutics. The discovery of the action of chloral, by Liebreich, has given an impetus to the study of the decomposition of chemical agents in the organism. M. Byasson thinks that the longer duration of the action of chloral than that of chloroform, is due to the slowness of the chemical action, and that the difference of their action is explained by the intervention of formic acid, produced in the case of the former drug. M. Personne, on the other hand, believes that the combination of the chloral with the albumen will explain the differences in their action.

JAMES ROSS, M.D.

RABUTEAU ON A NEW REMEDY: THE YERBA DEL PERRO.—At the meeting of the Biological Society of Paris on December 5, M. Rabuteau presented a new Mexican plant of a poisonous character, the *Yerba del Perro*, which had been sent to him by M. Victor Salet. He had tried its therapeutic properties on dogs, and found that they raced about, were much disturbed, had convulsions, and died in the short space of ten minutes.

The extract is very deliquescent. Eighty centigrammes (twelve grains) injected into the veins of a medium-sized dog produced the following effects. There was nothing remarkable until an hour had passed; at the end of that time, the dog barked a great deal, foamed very much at the mouth, and fell down in convulsions. These symptoms lasted during half an hour, when the animal died. This new plant produces symptoms analogous to strychnine, but the convulsions produced are of a different character. In the dog which was first experimented on, the pupils were enormously dilated; the brain was congested, but not the spinal marrow; the lungs were in a normal state. This *Yerba del Perro* (dog-grass) belongs to the family of Compositæ; it has a woolly stem, and seems to be highly poisonous.

RECENT PAPERS.

- Nitrous Oxide Gas. By Dr. Barnes. (*Boston Medical and Surgical Journal*, November 26.)
 The Physiological and Chemical Action of Alcohol. By James Ross, M.D. (*British Medical Journal*, December 12.)
 On Herpes. By Dr. Garden. (*Indian Medical Gazette*, November 2.)
 On the Treatment of Leprosy by Vaporised Carbolic Acid in union with Watery Vapour. (*Indian Medical Gazette*, November 2.)
 The Employment of Wine in Acute Diseases and in Chronic Affections. By M. Bégin. (*Gazette des Hôpitaux*, December 12.)

OBSTETRICS AND GYNÆCOLOGY.

EMMET ON REMOVAL OF UTERINE FIBROID.—Dr. Emmet reports (*American Journal of Obstetrics*, August, 1874) a case of fibroid tumour of the uterus removed by him the day before. The patient had been suffering from excessive metrorrhagia during the past month, which had been controlled only by the constant use of styptic injections. The uterus was anteverted, and its cavity occupied by a fibrous tumour of the size of a fist; the sound could be introduced to the depth of five inches posteriorly and of three inches anteriorly. Suppositories of gelatine, containing each 16 grains of Squibb's aqueous extract of ergot (equivalent to about 100 grains of powdered ergot) were introduced into the rectum, where they produced but little effect, and then daily, during the last ten days, into the cavity of the uterus itself, with marked beneficial results. The uterus, which at first had been more elongated and pear-shaped, now became broad at its fundus, where it measured no less than four inches; the tumour thus approached the internal os, although its broad attachment to the uterine wall was in no way changed. The great difficulty was to get an instrument or a loop behind or around the tumour, in order to effect its removal. Dr. Emmet retroverted the uterus, seized the fibroid with a double tenaculum, and proceeded to draw it down towards the vulva, in which attempt he succeeded after about half an hour's steady traction, removing portions of the tumour with the scissors as it became attainable. When the fibroid had been brought down to the vulva, Dr. Emmet thought he was inverting the uterus, at which prospect he was not alarmed, for he knew that he could easily return it at once; he found, however, that the uterus had contracted behind the tumour as it was drawn down, and had thus by its individual efforts enucleated the base of the tumour, and at the same time prevented hæmorrhage, and made it necessary only to divide the capsule of the fibroid with the scissors in order to remove the whole growth. During the whole operation, which lasted about an hour and a half, hardly a drachm of blood was lost, and that came from the laceration of the fibroid by the double tenaculum. The base of the tumour measured about two inches in diameter; after its removal, only a slight depression could be felt at the fundus to indicate the spot where it had been attached. After the operation he followed his usual rule of washing out the uterus with warm water, and painting the whole of its cavity with Churchill's tincture of iodine, as a precaution against septicæmia.

This is the most difficult case of the kind he has seen. A few years ago he removed a similar tumour

in the same manner, but did not fully understand the *rationale* of the operation until lately. The steady traction used arrests hæmorrhage, because it excites the uterus to contract behind the tumour as it is drawn down, and thus to compress the bleeding vessels, besides bringing the fibroid nearer and more convenient for removal. It is not the forcible traction of the fibroid towards the os, that is, in the direction of the least resistance, but the *vis a tergo*, the contraction of the uterus behind the tumour, which gradually lifts the latter from its bed and enucleates it. This steady traction may be of service, if repeated at regular intervals, in bringing uterine fibroids within reach and making them amenable to operation, and may, perhaps, even accomplish their gradual enucleation.

SCHULTZE ON A CASE OF DOUBLE MASTODYNIA WITH SECRETION OF COLOSTRUM.—Dr. F. Schultze relates in the *Berliner Klinische Wochenschrift* for October 19, 1874, a case in the clinic of Professor Friedreich of Heidelberg.

It occurred in a married woman, aged twenty-six, the mother of one child, which she had suckled only for six weeks; her milk, which was plentiful before, disappeared suddenly through mental distress, without any pain. Menstruation returned, and continued to be normal up to her admission into the hospital in June, 1873. She stated that about seven months before her admission, and about four months after an acute attack of rheumatism, she was suddenly seized with sensation of fullness of the right breast, as if 'the draught' had come in; this continued, and on squeezing the gland, milk squirted out. The feeling of distension subsided the next day, and most acute pains in the breast came on. Five days afterwards the left mamma was similarly affected, and pain attacked both, mostly the left. At first there were intervals of entire freedom from pain, but during the last few weeks before entering the hospital the suffering was continuous, only exacerbations and remissions being observable. She was anæmic, but well nourished; the breasts were moderately pendent; palpation discovered nothing abnormal, and nowhere were there any painful nodules, nor were the glands anywhere sensitive. A few drops of a yellowish fluid could be squeezed out of the breasts, which exhibited microscopically all the characters of colostrum. There was tenderness over the dorsal vertebræ from the second to the tenth. All the thoracic and abdominal organs were normal. There were no signs of extra-uterine or uterine pregnancy, only some leucorrhœa and slight redness at the vaginal orifice.

The patient was kept nine months in the hospital, and every conceivable method of treatment was adopted; medicines of all sorts, subcutaneous injections, electricity, galvanism, and the continuous currents. The sufferings of the patient fluctuated under these various methods of treatment; at times showing improvement, at others the reverse.

The pain in the right breast was generally in its upper half, over the collar-bone and through the shoulder; in the left, in its lower half, and down the same side. The left mamma was, as a rule, the more painful during her stay in the institution. On stooping she frequently felt a sensation as if the breasts 'would fall out.' Repeatedly, every fourteen days, for about two or three times, she experienced a peculiar feeling of chilliness in both mammae, which

lasted for some hours; there was also at times some formication, but never any anæsthesia of the skin.

Distinct symptoms of hysteria never showed themselves; menstruation was not very regular either as to quantity or to time; latterly, during the periods, the pain in the breasts increased, the mammae becoming tense and full; the secretion at these times was clearer, more like serum, with fewer milk-globules and less appearance of milk.

Pure uncomplicated mastodynia is stated by Broca never to exist, whilst some of the older German writers mention it as a 'tolerably frequent affection, especially in delicate nervous women.' Eulenberg believes it to be one of the rarest and most obstinate forms of neuralgia; be that as it may, it is certain that to find it accompanied with a secretion of milk is a rare and remarkable occurrence.

Galactorrhœa, whether in old or unimpregnated women, or in men, is by no means an exceptional event; but there is no instance in literature of a pure mastodynia coupled with a secretion of milk. Beigel's well-known case differs in this respect from the above, that the milk came first, the pain afterwards; whereas in Professor Friedreich's case the pain was first, the milk-secretion followed. He believes he is not wrong in attempting to explain his case by analogy with neuralgia of the trifacial, where there is an immense secretion of the lacrymal gland, through irritation of the lacrymal nerve. So also in neuralgia of the nerves supplying the skin (*Hautnerven*) of the gland, the nerves of secretion may become irritated, causing a flow of milk, or it might be that the nerves of secretion and sensation were affected by one and the same irritation, which would produce the self-same effect. It is remarkable, considering the intimate relationship between the nerves of the skin and the nerves of the gland, that this affection is not more frequent. It could hardly have escaped the notice of careful observers if such were the case.

BIDDER ON A CASE OF SUBMUCOUS FIBROID OF THE UTERUS.—Dr. A. Bidder of Mannheim (*Berliner Klinische Wochenschrift*, Nov. 16, 1874), reports a case of large submucous fibromyoma, growing with a broad base from the anterior wall of the uterine cavity. He pulled it down to the vaginal orifice and cut it away with the scissors, applying the actual cautery to the raw surface to prevent hæmorrhage, which was slight during the operation; rapid cure followed. The following are the more important features in this case. The uterus was anteverted and above the pubes, freely movable, with a subperitoneal fibroid at the fundus; the os was nodular and admitted the tip of the finger; examined during menstruation, the os was dilated about five centimètres, encircling a smooth, round solid mass projecting into the vagina; the finger could not reach up quite as far as the upper border of its seat of attachment, even when the uterus was powerfully depressed through the abdominal walls. When re-examined after the hæmorrhage had ceased, the cervix could now only admit two fingers, and could reach no higher although it was pulled down with Museux's hooked forceps. Bleeding returning, an injection of a solution of iodine of the strength recommended by Savage, was injected into the uterine cavity which had the effect of arresting the hæmorrhage, and causing the tumour to descend still lower through the os, with, it is true, intense pain. The tumour was close upon the outlet. The top of the insertion of the body

was now felt for the first time; the base was more than six centimètres wide. It could be drawn through the vaginal orifice easily with the hooked forceps; the insertion was about twelve centimètres long and nine centimètres wide; there was no proper pedicle. A thick thread was passed through at its border between the tumour and the uterus. The écraseur (Mayer and Meltzer's) broke. The scissors were used to divide the bands of loose connective tissue between the capsule and the tumour. Little blood was lost. As a precautionary measure, the whole surface of wound was cauterised by the actual cautery, then bathed with ice-water; the thread was removed, and the uterus replaced. An ice-bag was applied to the abdomen for three days; the temperature rose the first two days, then became normal and continued so. Menstruation returned the next month with moderate loss, and since then has been normal. The effect of the injection of the iodine solution is particularly noteworthy, as stopping the hæmorrhage and exciting contraction of the uterus, which considerably aided its removal. W. C. GRIGG, M.D.

SPIAGGIA ON A CASE OF THROMBOSIS OF THE UTERO-OVARIAN VEINS, WITH METASTATIC ABSCESSSES IN THE LUNGS.—Dr. Salvatore Spaggiaglia describes this case in the *Gazzetta Clinica della Spedale Civico di Palermo*, fasc. ii. & iii., 1874. The patient was a woman, aged thirty-nine, who had been married twenty-two years, and had had five children and two abortions. In December, 1873, she was attacked with slight rigors, followed by great rise of temperature. The attacks recurred daily, from the 17th to the 31st, on which day she aborted. Quinine was given; the febrile paroxysms, however, continued. On January 31, she was admitted into hospital. There was found to be considerable enlargement of the spleen, with disturbance of the circulatory, and especially of the respiratory organs. She rapidly grew worse and died.

At the necropsy, thirty-two hours after death, the lungs were found to be almost universally adherent to the thoracic walls, and were literally stuffed with purulent deposits of various sizes. In a portion of the right pleura which remained free from adhesion, about 400 grammes (fourteen ounces) of sero-purulent fluid were found. The deposits contained pus-globules, fat-granules, and débris of pulmonary tissue, immersed in a fluid, which to the naked eye had the appearance of milk rather than pus. The bronchial mucous membrane was uniformly reddened; the pulmonary tissue surrounding the deposits was reddened and hard (as if hepatised), and presented signs of interstitial hæmorrhage. The arteries and veins in many parts of the lung were full of white or rose-coloured friable coagula, fibrin, fat-granules, and pigment. The pericardium contained a little yellow serum; the heart was flabby. The liver presented the characters of nutmeg-liver, and was closely adherent to the diaphragm. The lower vena cava, where it was in contact with the liver, had a third of its periphery lined with a layer of matter resembling coagulated fibrin, of a dirty white colour, dense, and finely granular; it was readily torn in attempting to remove it. This substance extended as far as the surface of the utero-ovarian vein, which was completely obliterated by a whitish hard coagulum. The spleen was doubled in size, and the kidneys were anæmic and softened.

Dr. Spaggiaglia believes that the morbid process

commenced in the utero-ovarian vein in consequence of the pressure of the uterus; that the thrombus extended into the cava, where it became softened; and that portions were carried into the circulation, and, being arrested in the small branches of the pulmonary artery, produced the abscesses in the lung. A. HENRY, M.D.

CURTIN ON ANTENATAL ERUPTION OF THE TEETH.—Dr. Curtin gives an account in the *Clinic* of November 21, of a case of this description. According to his account, the child, which was normally constituted otherwise, had nine perfect teeth when born. He goes on to say that the child was first visited by him when it was four weeks old (January 27, 1874), in company with Dr. James S. Myers, who had seen it previously, and very soon after its birth. They found an emaciated male infant, evidently suffering from marasmus and near its death, having five teeth in place and four distinct conical fleshy papillæ, from which a corresponding number of teeth, two incisors and two molars, had already been removed. These teeth loosened of their own accord, and not from the pressure of others from beneath. In addition to these, a number of small whitish nodules could be seen and felt along the line of the gums, above and below, lying underneath the mucous membrane, and evidently marking the place of all the other deciduous teeth. No change took place in these up to the time of the child's death, which occurred at the sixth week.

RECENT PAPERS.

- Report on Puerperal Affections. By M. Ernest Besnier. (*L'Union Médicale*, November 28.)
 Report on a Peracephalic Monstrosity. By Dr. Ternisien. (*Bulletin de l'Académie de Médecine*, nos. 47 and 48.)
 Note on an Epidemic of Puerperal Fever at the La Pitié Hospital. By Dr. Dujardin-Beaumetz. (*Union Médicale*, December 10.)
 On the Treatment of Pregnant and Lying-in Women in La Pitié Hospital. By Professor Lorain. (*L'Union Médicale*, December 12.)
 On Uterine Congestion. By M. Alphonse Guérin. (*Le Mouvement Médical*, December 12.)
 On the Surgical Diseases of Children. By M. Saint-Germain. (*Gazette des Hôpitaux*, December 10.)
 Action of Sulphate of Quinine on the Uterus. By Dr. Brochin. (*Gazette des Hôpitaux*, December 12.)

PSYCHOLOGY.

GRAY ON THE PATHOLOGY OF INSANITY.—Dr. Gray, New York State Lunatic Asylum, Utica, in an able paper upon the pathology of insanity (*American Journal of Insanity*, July, 1874), introductory to a portfolio of photo-micrographs of morbid appearances observed in patients who had been under his care, states that these illustrations embrace healthy brain-tissue, acute, subacute, and chronic mania, melancholia, in acute and chronic stages, dementia, general paresis and epilepsy; and in connection with each is a descriptive text, presenting a brief history of each case. These investigations embrace the microscopic examination of fifty-two cases, and especially the changes found in the vessels, nerve-fibres, cells, and neuroglia or connective tissue. The history of the mental manifestations has been epitomised; the description of the morbid appearances, as represented in the plates, is given almost verbatim.

I. *Chronic Mania*.—*A. History*.—M., aged sixty-two, laboured under mania of suspicion for some years. Memory impaired; miserly in habits; hoarded; untruthful; feeble in intellect. Disease aggravated by law-suit; incoherent and excited in court. Lost sleep and appetite, and emaciated rapidly. Became maniacally violent, and resisted interference. Destructive, cutting hands, etc. Continued in this state, and died a week after admission to asylum.

B. Morbid Appearance.—In a section through the third left frontal convolution, the degeneration was in a most advanced stage. The masses were distinctly isolated from the surrounding tissue, which had partly undergone slightly fatty changes. The concentric layers of connective fibres which formed the cavity in which the masses were contained, appeared distinctly around the mass, whose gelatinous semi-fluid aspect contrasted strongly with the granular structure of the rest of the brain. The microscope showed the nerve-element very much marked by a fine dark granular matter, not dissolved by ether, becoming more distinct in its granular compositions when treated by acetic acid. The connective fibres and nuclei could be made out in the middle of the substance, but the more conspicuous character of the alterations was the presence of large ovoid or spherical products, changing in appearance from a finely granular pellucid mass to a semi-gelatinous or diffuent fluid. These morbid products were surrounded by condensed meshes of connective fibres forming a true cystic cavity, from which the contents might be easily removed. In their solid form these products were very friable. Indications were noticed that the necrobiosis had in certain places reached an advanced fluid stage preliminary to the re-absorption of the cystic contents observed at the later period of the degenerations, where the true lacunæ replaced the pre-existing morbid contents. A proliferation or hyperplasia of the fibres of the neuroglia was observed, but not the proliferation of nuclei, nor the distension of the lymphatic sheath which surrounded the vessel by the collection therein of fatty globules. It was inferred from the characters of fatty degeneration and non-proliferation of nuclei, etc., that these structural changes differed from those observed in sclerosis.

II. *Melancholia, Chronic*.—*A. History*.—F., aged fifty-seven, mother of eight children; hereditary tendency. Previous psychical condition not known. Temporary convalescence followed by loquacity, incoherence, destructiveness. Refused food; lost flesh and strength; became pale, anæmic, continued maniacal, but gradually failed and died in eight months from diarrhoea.

B. Morbid Appearances.—In a section through the medulla, the character of the degeneration was demonstrated in the different stages of development. Small or larger well-defined semi-transparent spots of a granular substance, reflecting the light with brilliancy, but not tinged by carmine, and not soluble in ether, alcohol, or chloroform, surrounded by a proliferation of connective fibres, indicated the earlier degrees of this alteration. In more advanced stages the mass reached a semi-fluid condition. It should be remarked that this change, which may resemble a state of sclerosis, differs in its character from the condition described, which in no instance, as we are aware, leads to the complete separation of the morbid product within a well-defined cavity, nor to the entire absorption of encysted morbid products.

III. *General Paresis*.—*A. History*.—M., aged twenty-nine; no hereditary tendency; accustomed to liquor and tobacco. In good health till attack of right hemiplegia four years ago. Diphtheria. Injurious effects of overdose of acetate of lead; convalescent for two years. Mental excitement; complained of fancied blow on head; extravagant delusions as to extensive purchase; unsteadiness of gait; simulated drunkenness; ordered carriage; etc. Became maniacal and was taken to prison. Extravagant delusions as to power; wealth; hesitancy of speech; vacillation in walking. Tremor of tongue and fingers, and loss of co-ordination of the latter. A parietic convulsion, followed by apparent restoration to health, with appreciation of condition and its issue. Repeated convulsions, and gradual failure and death after fourteen months.

B. Morbid Appearances.—Advanced fatty degeneration was observed in the anterior roots of the cervical nerves. There was rupture of the axis of the fibres, and accumulation of granules in the posterior columns and the long vessels. The medulla oblongata and pyramidal bodies were of small size and indurated. There was atrophy of the roots of the hypoglossal nerve. The fibrillar structure was indistinct. Pigmentary degeneration of the large ganglionic centres near the septum was noticed. There was slight pigmentary degeneration of the centres of the roots of the vagus and facial nerves. There was general atrophy of the nervous element of the third convolutions in both hemispheres. The pyramidal cells were diminished in number, but hypertrophied in the left parietal convolutions. The spindle-shaped cells of the inner layer were frequently in a state of granular degeneration. Deposits of fatty and crystalline masses existed in the grey substance, and irregular proteinous bodies between the fibres of the white substance of the convolutions. The vascular system exhibited extensive degeneration. The walls of the smaller vessels were frequently found thickened, swollen, and infiltrated by a homogenous hyaline substance. In other cases the larger capillaries showed themselves manifold, curved, distending the adventitious membrane between the curves, and giving rise to accumulations of lymphatic elements, fatty granules, and pigment-bodies; others were surrounded by a dense layer of nuclei, surpassing three or four times the inner space of the vessel; and others were involved by cell-bodies of a spongy-like structure. A section through a part of the pons Varolii, near the roots of the trigeminus, showed numerous deposits of proteinous bodies between its fibres and the surrounding tissue. A section through a part of the medulla near the raphé showed colloid bodies.

IV. *Epilepsy with Dementia*.—*A. History*.—M., aged nineteen. Epilepsy for nine years. Habits good. Mind feeble; taciturn, indifferent. Fits daily. Lost control of sphincters. Kept in bed. Refused food, except bread and milk, which he took freely. Died in a fit.

Morbid Appearances.—*B.* Fine fatty granular degeneration interspersed with amyloid corpuscles were seen in the medulla and olivary bodies, and in the third left anterior convolution as well as in other sections of the brain. A section through the spinal cord, opposite the first cervical vertebra, showed portions of the posterior columns in which the multipolar cells were seen filled with pigment. The granular amorphous matter was considerably increased, and mixed with very fine transparent fibrils of connective tissue and very small connective nuclei. A section through the middle cervical ganglion of the sympathetic

showed the same fuscous or pigment-degeneration of the ganglion-cells, with a very marked hypertrophied condition of the connective tissue.

V. Subacute Mania (Syphilis). A. M., aged twenty-five. Patient intemperate. A clerk and canal officer; dissolute; contracted syphilis; health failed, but still addicted to drinking and dissipation. Threatened life of father. Secluded himself; went through house semi-nude; feverish, delirious; still drank largely; was abusive, violent, riotous. Wounded an inmate with a pistol, and subsequently shot his stepmother, whom he asserted he was commanded by God to kill for attempting to poison him. On admission, thin, pale; tongue coated; features sharp. Sinuses in hand and foot. Restless, loquacious, discontented. Ate and slept well, but denied doing either. Tumor of left leg and foot, with bullæ; sinuses in nates; impairment of strength; hæmorrhage; died in six hours. No aphasia; limited delusions. Coherent and conscious of condition. **B. Morbid Appearances.**—The nerve-centres, as well as all the viscera of the body, had undergone the fatty degeneration observable in constitutional syphilis. The contrast between degeneration in these two cases was very marked. A section of the left frontal convolution at the union of the grey and white substances showed the dark outline of the globules as having a very brilliant and transparent appearance. Section of medulla across the olivary bodies, and of the posterior nerve-roots of the cord, showed one of the large masses split up, and others developed in the midst of thick meshes of fibres, and encroaching upon the adjacent nerve-fibres.

VI. Acute Mania.—A. History.—F., aged thirty-six; healthy, but exposed to great anxiety by domestic affliction. Depression; suspicious as to fancied conspiracies; irritable, profane, obscene, and then maniacal; pale; anæmic; rapid and feeble pulse; surface cold; headache; noisy, incoherent, restless, vigilant; appetite variable. Death preceded by increased restlessness and resistance. **B. Morbid Appearances.**—Capillaries characteristic of acute mania. The earliest accumulations of granular masses were around the nuclei of the adventitious membrane. In a further advanced stage, a part of the vessel was surrounded with granule-cells. Thirdly, there was entire involvement of the vessel by the fatty granules; the accumulation exhibiting a crystalline and atheromatous condition. The larger cells of the middle layer of the cortical substance, especially of the hemispheres and the Sylvian fissures, were puffed out and remarkably enlarged, their contents forming large globules, distributed in half circles around the enlarged transparent nuclei, the nucleoli of which were only very rarely pronounced. In certain sections from the Sylvian convolutions, the outlines of the cells could not be traced. W. A. F. BROWNE.

RECENT PAPERS.

- The Morisonian Lectures. By Dr. J. Batty Tuke. No. I. (*Edinburgh Medical Journal*, November, 1874.)
 On the Medical Study of Inebriety. By T. D. Crothers, M.D. (*American Practitioner*, November, 1874.)
 The Residence and Agencies of the Passions. By G. Bayles, M.D. (*Virginia Medical Monthly*, November, 1874.)
 Report on Mental Diseases. By John Todhunter, M.D. (*Irish Hospital Gazette*.)
 Mania a Potu. By Dr. Hayes Newington. (*Edinburgh Medical Journal*, December, 1874.)

REVIEWS.

On Functional Derangements of the Liver. By CHARLES MURCHISON, M.D., LL.D., F.R.S., Physician to St. Thomas's Hospital, etc. London: Smith, Elder, & Co., 1874.

In his Croonian Lectures at the Royal College of Physicians, in March last, which were reported in the *British Medical Journal* (and in the *Lancet*), Dr. Murchison has fully vindicated the claims of the liver to a large share of attention from pathologists and practising physicians. These lectures have now been reprinted, with additions, in a very neat form; and some woodcuts of leucin, tyrosin, and other microscopic objects are inserted in the text. The functions which Dr. Murchison alleges the liver to possess are the following.

1. It is one of the organs mainly concerned in the process of sanguification; not only as forming glycogen and fat, but as increasing the number of leucocytes (Bernard, Lehmann, McDonnell, Hirt, Weber, Kölliker, etc.), and probably of red corpuscles also.
2. It is not only a blood-forming, but a blood-destroying or purifying organ, and contributes in a great degree to the destruction of albuminous matter derived from the food and textures, and to the formation of urea and lithic acid, subsequently eliminated by the kidneys (Lehmann, Brown-Séquard, Gréhaut, Legg, Bence Jones, Parkes, Cyon, etc.).
3. The next function of the liver is the secretion of bile. Dr. Murchison combats the idea that bile-pigment is formed in the blood, and believes that this, as well as the biliary acids, are formed by the liver. He thinks (with Dr. Carpenter) that about forty ounces of bile are a fair average daily quantity for a man of eleven stone weight.

These three functions, taken together, show that 'the liver contributes to the maintenance of animal heat, to the nutrition of the blood and tissues, to the development of white blood-corpuscles, to the purification of the blood, the elimination of much nitrogen and carbon, the assimilation of fat and peptones; whilst some of the bile, in passing along the bowels, stimulates peristalsis and arrests decomposition.'

The functional derangements of the liver are classified by Dr. Murchison as follows:—1. Abnormal nutrition; 2. Abnormal elimination; 3. Abnormal disintegration; 4. Derangements of the organs of digestion; 5. Derangements of the nervous system; 6. Derangements of the organs of circulation; 7. Derangements of the organs of respiration; 8. Derangements of the urinary organs; 9. Abnormal conditions of the skin. [The reporter thinks abnormal conditions of the generative organs might well be added to this list, particularly in females.] Under these various heads, the following conditions or diseases are shown to be caused or aggravated by functional derangements of the liver. 1. Corpulence; 2. Emaciation. [This paradox is well known to practical men, and explanations are offered by Dr. Murchison.] 'Diabetes also may be said to be, in most instances, a functional derangement of the liver. The various causes of glycosuria may be said to come under one of the three following heads; a. Imperfect glycogenesis in the liver; sugar swal-

lowed and not assimilated, appearing in the urine ;
b. An increased conversion of glycogen into sugar ;
c. Diminished destruction of sugar.' 3. Phthisis and waxy disease, and other wasting diseases, are not improbably connected with some functional derangement of this organ ; 4. Deficient elimination of urea, leading to convulsions, coma, and death [not cholestæmæmia, but uræmia.] ; 5. Lithæmia, or excess of uric acid in the blood. This word is proposed by our author instead of Dr. Austin Flint's 'uricæmia'—it signifies what many people call 'masked gout,' and partially explains gouty dyspepsia, and gouty neuroses. Gout itself, urinary calculi ; 6. Biliary calculi ; 7. Many diseases of the kidneys ; 8. Structural diseases of the liver itself, such as fatty liver, may result from long continued derangement of its disintegrative functions ; 9. General tissue degenerations and constitutional diseases ; [probably acute rheumatism, erysipelas, and sometimes pyæmia, chlorosis, and some other forms of anæmia.] 10. Diarrhœa, and its opposite, constipation—intestinal hæmorrhage—hæmorrhoids ; 11. Jaundice, of which the following tabular view is given, though in a more extended form (pp. 96-98).
 A. Jaundice from mechanical obstruction of the bile-ducts ; *a.* By foreign bodies within it ; *b.* by inflammatory tumefaction of the duodenum or living membrane of the duct, with exudation into its interior ; *c.* Obstruction by stricture or obliteration of duct, from various causes (five enumerated) ; *d.* Obstruction by tumours, closing the orifice of the duct, or growing within it ; *e.* Pressure in the duct from without (ten causes mentioned, which may be reduced to four, viz., tumours and enlarged glands, aneurisms, pregnancy, fæcal accumulations).
 B. Jaundice independent of mechanical obstruction of the bile-ducts ; *a.* Poisons in the blood (fevers, animal, vegetable, and mineral poisons) ; *b.* Impaired or deranged innervation (shock, fright, anxiety, etc.) ; *c.* Deficient oxygenation of the blood ; *d.* Excessive secretion of bile, more of which is absorbed than can undergo the normal metamorphosis (congestion of the liver) ; *e.* Undue absorption of bile into the blood from habitual or protracted constipation.
 12. Numerous derangements of the nervous system, neuralgia, cramps, vertigo, convulsions, paralysis and coma, etc., and especially irritability of temper ; 13. Disturbances of circulation such as palpitation, pulsatile aorta, intermittent pulse, angina pectoris, and venous thromboses ; 14. Chronic bronchitis, spasmodic asthma, etc. ; 15. Eczema, lepra, psoriasis, lichen, urticaria, boils, carbuncles, xanthelasma (vitiigoidea) and pruritus are the chief skin-diseases attributed to liver-derangements.

Formidable as is this catalogue, almost as long as that of Homer's ships, and inclining one, if substantiated, to believe that 'Every disease is a disease of the liver,' Dr. Murchison has much that is pertinent to say on every one of these heads, and his own views on every subject are illustrated and supported, wherever possible, by illustrations drawn from the best British, American, and continental sources, both old and new ; some of the latter only published just before these lectures appeared. He inclines strongly to the view that liver-disease is often caused by mental and moral causes, and he writes eloquently against the abuse of alcoholic liquors which is so common in our days.

W. BATHURST WOODMAN, M.D.

MISCELLANY.

MISS ALICE VICKERY, the first and only registered lady pharmacist in England, has just passed honourably, in company with Mrs. Algernon Kingsford, the first year's examinations of the School of Medicine of the University of Paris.

MISS MARIA VOGTLIN, M.D., who graduated last spring in Zurich after a brilliantly sustained examination, has settled there as a practitioner in diseases of women and children, and has already obtained an extensive *clientèle*. She is now the wife of Dr. Heim, one of the professors in the faculty of medicine at Zurich.

YELLOW FEVER.—A somewhat remarkable circumstance has occurred in connection with the yellow fever in the Gulf cities of the South. It has hitherto been received as a certainty that upon the advent of frost the fever would disappear ; but this year it does not disappear, although there have been several frosts. In both Pensacola, Florida, and Mobile, Alabama, there still linger several cases of genuine yellow fever.

CAMBRIDGE PHILOSOPHICAL SOCIETY.—At the meeting of this Society on November 30, a paper on 'Lopsided Generations,' or 'Righthandedness,' by Dr. W. Ainslie Hollis, was read. The author laid special stress on the statement that the left side of the brain in man is the larger, and that aphasia is connected with disease of that side ; statements which, in the discussion which followed, Professor Paget justly remarked were not yet in any way proved. The cases of Johnson and Swift were quoted as instances in which the left side of the brain had suffered, and paralysis of the right side had been induced, apparently as a consequence of overwork. Professor Humphry and Mr. Carver both agreed that right-handedness was much a matter of education.

DOGMA *v.* SCIENCE.—Seven memoirs have been sent in to the Paris Académie de Médecine, in competition for the Capuron prize. They are on obstetric subjects, and the one which is expected to carry off the prize treats of uterine retroversion during pregnancy. The author has laid stress on the differences existing between a sacciform bag of the posterior wall of the uterus, which forces the neck forward, and non-symptomatic retroversion, facts which have long been known. The author of the memoir recommends puncture of the bladder, a useless operation, which, M. Depaul remarks, is of no avail as a remedial measure, whilst premature delivery may save the mother and sometimes the child also. According to the *Journal des Connaissances Médicales*, M. Bernutz explains that the author of the memoir in question is a professor at the Catholic University of Louvain, and he would have been reprimanded and placed in the Index if he had mentioned the existence of the operation for premature labour, which is rejected by his school, in opposition to what is permitted in Italy, and even in Rome itself.

COMPARATIVE EFFECTS OF SEA AND MOUNTAIN-AIR. Professor Beneke, of Marburg, makes some observations in the *Deutsches Archiv für Klinische Medizin*, March, 1874, on the comparative influence of sea and mountain-air on the system. He believes that he has ascertained experimentally that bodies part with their heat much more rapidly on the sea-coast than on mountain heights. This explains why it is that metamorphosis proceeds more rapidly at the sea-side than elsewhere, and that an increased amount of urea and a diminished quantity of uric acid and earthy phosphates are met with in the urine. The increased abstraction of caloric makes an increased production necessary, and accordingly leads to greater rapidity of metamorphosis. If these observations are verified, Beneke points out that we will have a much more definite indication for the recommendation of particular climatic changes. As the increased metamorphosis depends, *ceteris paribus*,

on the rapidity with which heat is abstracted from the body, it follows that, in mountain-air, the processes of change will be less considerable than at the sea-side. Accordingly irritable, nervous, excitable people, will find themselves better in mountain-air; on the other hand, scrofulous subjects, and persons with good digestive organs, who have been overworked, will derive greater benefit from a sojourn at the sea-side. The diminished atmospheric pressure at considerable elevations is also of importance, both by rendering bodily movements easier, and by increasing the activity of the respiratory movements. In making his observations, Beneke was careful to exclude every source of error, such as might be caused by difference of temperature, moisture, and winds, and he can only refer the remarkable differences which he has observed to the diminished density of mountain-air making it a worse conductor of heat.

OPHTHALMOLOGY IN SPAIN.—It well known that the inhabitants of warm climates are liable in a special degree to diseases of the eye and its appendages, brought about by the combination of the effects of burning sunlight, with hot dry winds and an atmosphere charged with sand or dust. In Egypt all these conditions are met with in the highest perfection, and when we add to these natural conditions a superstitious belief on the part of the inhabitants that it is wrong to attempt a cure of such complaints, we need not wonder that the country in question should be considered as the home of many varieties of such diseases. To a less extent, but in a very high degree, the same conditions of climate and of atmosphere are met with in Spain; and Dr. Camuset, in an article in the *Gazette des Hôpitaux* for September 24, draws a striking picture of the conditions which exist in the large towns of Andalusia, for instance; the glare from the whitewashed walls is intensely painful, necessitating a shade for the eyes, or in many instances the use of protective glasses which carry with them an inherent evil of their own, in that they induce a degree of sensitiveness to light for some time after their use has been discontinued, an effect which is overlooked by many who are in the habit of prescribing them. The number of blind people to be met with in Spain is a fact which at once forces itself upon the attention of the traveller; and in the condition of the climate, and in the ignorance and superstition of the inhabitants, the explanation is not far to seek. Blind beggars patrol the streets in bands, the majority of whom appear to have suffered from the corneal opacities and the varieties of staphyloma, which are the result of neglected ophthalmia incurred in infancy. On the other hand, amaurosis and other deep-seated causes of blindness are rarely met with. Amongst other diseases of the eye which are very commonly to be met with, are diseases of the lachrymal organs in every variety and in great numbers. Cataracts are common, and so also are corneal affections of a scrofulous type, and such as have their origin in want of proper food, and in general neglect; affections of the retina and atrophy of the optic nerves are rarely seen. All this, however, it is hoped, belongs to the past. Most of the large towns in Spain can now boast of their well-educated teacher, brought up in the French medical schools; and in many there are well appointed ophthalmic clinics. At Barcelona, for instance, Drs. Osio, Torrès and Carrera are at the head of well-attended clinics upon the French model. At Valencia, Dr. Armet, Professor at the School of Medicine, and Dr. Aparicio practise ophthalmic surgery with success. Dr. Camuset describes a case which he saw in the practice of the last-named surgeon. The case was that of a man who, during a fainting fit, had fallen with his head upon a burning brazier. The skin of the face was severely burnt, and the eyelids were completely destroyed. The injury was so extensive that there was no possibility of separating the eyelids from the integument of any part of the face. They were, however, replaced from the integument of the patient's arms with very great success. Seville has its ophthalmic surgeon in Dr. Chiralt; and at Cadiz there is a public hospital under the direction

of Dr. Toro. At Madrid the science of ophthalmology is taught and practised by Drs. Cervera and Delgado. The former of these gentlemen, a distinguished assistant for many years of the elder Desmarres, presides over a public hospital which is under the management of the Society of Saint Vincent de Paul, and is attached to the college of Saint Isabel. Dr. Cervera still gives his allegiance to the old method of Daviel for extraction of cataract, and he frequently destroys the lachrymal sac for long-standing disease. Dr. Delgado, another assistant of Desmarres, established a private clinique in 1860, the importance of which was soon recognised, and the municipality charged itself with its support, and in 1872 King Amadeus and his queen became its patrons, and added new buildings, so that there now exists a flourishing institution, which affords aid to a large number of patients, and where a large class of students are annually educated. The arrangements for teaching in all its different directions, and for the treatment of large numbers of patients, both as indoor and as outdoor patients are elaborate and complete, and could hardly be excelled by any such arrangements for the purpose in any other schools. There is a museum with a liberal supply of good microscopes; outpatient's rooms have been most carefully fitted up with all appliances; and there is an operating theatre which cannot, says Dr. Camuset, be excelled anywhere. In this theatre, Dr. Delgado performs about 600 operations annually, 250 of which are for cataract. The nursing is under the control of ladies of the Society of Saint Vincent de Paul, the lady superintendent of whom is French. The institution, since the abdication of its royal patrons, has the support of the marshal president, and is justly regarded as the Alma Mater of all students of ophthalmology in Spain.

DAVIES'S EFFERVESCENT SALTS.

Mr. M. N. Davies, of Tenby, has introduced a series of effervescing salts, which are intended to serve as portable substitutes for the waters of the alkaline, sulphurous, and chalybeate spas. They are of three kinds, an alkaline effervescing salt, a sulphurous effervescing salt, and a chalybeate effervescing salt. All of these salts are well worthy of professional attention. We know none which are superior to them, and they possess several unique advantages, especially that of becoming alkaline during effervescence, owing to an act of double decomposition.

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The London Medical Record.

WEDNESDAY, DECEMBER 30, 1874.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

TREATMENT OF PULMONARY PHTHISIS. By PROFESSOR BEHIER.*

The treatment of this disease should in truth begin, if it be possible, before the malady itself is an evident fact; this, indeed, should be so whenever we are called upon to treat an organic lesion; it is necessary to attempt the cure of the disease before its reality is demonstrated, and as soon as there is reason to fear the development of an evil, which at a later stage will be obstinate, if not irremediable. In no case is the Horatian precept *Principiis obsta*—always excellent—of greater value.

Prophylaxis has then here, perhaps, more essential importance than in any other case. But the measures to be taken are, above all things, individual in their character, and must arise out of the study of each patient in particular; for according as such or such a tendency manifests itself, such or such a course must be adopted. I shall give here then especially general indications; and the first, which is of general application, is, not to fall into exaggeration of whatever kind. Every day, indeed, we see prescribed for certain delicate individuals, infants or adults, a hygiene rather violent in its character, destined to harden them and to render them less vulnerable; they are clothed as lightly as possible; they are made to go out as soon as possible, and are deprived of all the usual precautions. This is playing with danger, and there is here an useless and dangerous precaution. In other cases precautions are multiplied; the suspected person, infant or adult, is surrounded with exaggerated care; shut into places which have always a high temperature, and covered with warm clothing; kept from the pure outer air for fear of the least chill; and thus the economy of the body is weakened, and withers away under the very influences which were intended to save it from that result.

Avoid these exaggerations. Seek especially a moderate temperature; do not fear the open air; prescribe it, on the contrary, but only when the air is gentle, and without abrupt changes. These general precepts ought also to guide us in the choice of climate which the individual whom we desire to save should inhabit. I shall presently insist further on this point when we study the question of the curative influence of climate. So for diet: let it be mixed; do not fall into that error which we observe often, and which consists in condemning persons who seem disposed to be phthisical to the continuous and exclusive use of red meat (beef, mutton, etc.), eaten when half cooked. This prescription does harm in the direction in which it aims at doing good, and

though the diet is tonic and restorative in the intention of those who advise it, it has not that effect in reality, because satiety engenders anorexia and disgust, and diarrhoea even is likely to supervene in individuals who conscientiously endeavour to conquer their repugnance. Allow them a mixed *régime*, from which, however, you must exclude acid things which are eaten hard and raw, and too great quantities of fruit; in a word, every excess of food capable of producing diarrhoea, and every aliment which does not agree with the patient.

As to drinks, you need not fear the moderate use of wine or brandy. But remark that I say the moderate use, which imposes on you the necessity of watching that every excess be avoided. The use of tobacco must be formally proscribed always as bad; whatever may be said about it, this habit is especially calamitous to persons threatened with pulmonary phthisis. Excess of venery and masturbation are both much to be dreaded, and the latter has, in some cases, a directly etiological influence. Observe also that every individual who appears to be threatened should carefully avoid late hours, whether for the purpose of work or of pleasure. All excessive expenditure of force is injurious to such persons, and a reparative sleep, sufficiently prolonged, is among the most indispensable necessities. Unfortunately these precautions are often only temporarily efficacious, or they are forgotten, and the disease declares and develops itself.

Then commences the veritable treatment. To what means must we have recourse? For long, and even now, the means of specific treatment have been the object of research. Do not put faith in their existence.

Without pretending to the discovery of specifics, certain medicines have been brought forward as being endowed with well-established efficacy. The list of the agents so recommended is very considerable. I shall pass over those which are chiefly useful to the persons who invent them and profit by their sale, and speak only of those which are free from danger and serve as resources more or less useful in the cause of lingering disease; and first of all of tartarised antimony.

Sylvius de la Boë attributed to this medicine an alternative action in general disorders (*De Methodo Medendi*, lib. ii. cap. x.). Huxham, Cheyne, Rivière, expressed a more or less analogous opinion: but, however, it was especially as an evacuant that these authors employed tartarised antimony, whilst Thomas Read, with the same object, preferred ipecacuanha. Lanthois (*Thèse Nouvelle de la Phthisie pulmonaire*, Paris, 1815) preferred tartarised antimony in the dose of 5·7 or 10 centigrammes in eight pints of pure water, or of a strong decoction of colt's-foot, as the habitual drink of the patient. He thought that this subtle agent was capable of penetrating into the corners of the system, increasing the strength, aiding the digestion, agitating and dissolving the degenerate juices, etc. [Passing over other early references we come to] M. Fonsagrives in 1860, who published an interesting memoir on the use of tartarised antimony (*Bulletin Gen. de Thérapeutique*, vol. lix. 1860, p. 5) in the febrile form of phthisis. His form is as follows: water 120·0, tartarised antimony 0·2, syrup of diacodium (a syrup of laudanum) 15·0, laurel-water 2·0, syrup of orange-flower water 15·0. This draught is administered by teaspoonfuls, one every hour, or every two hours if the patient be not very tolerant of the medicine. The addition of opium,

* Extract from a Clinical Lecture at the Hôtel Dieu, August, 1874. *Bulletin de Thérapeutique*, November 30.

M. Fonssagrives insists, formed part of the habitual mode of using antimony in such cases, introduced by Laennec into common use. M. Fonssagrives aims at procuring tolerance, and does not proscribe food. The antimony should at first not be administered for the space of an hour before or after food. The diet should consist at first of light soups. Subsequently the quantity and quality of the food may be gradually increased. At the end of a week solid diet may generally be adopted, and the patient thus supports better the antimonial treatment. Under its influence, it is said, the sweats and the dyspnoea evidently decrease, the expectoration becomes less and more easy, and there is no diarrhoea.

The total dose of tartar emetic absorbed would be 8 to 10 grammes, in the course of from one month and a half, to three months. This treatment, exceptionally useful, according to this author, in the first stage of phthisis, would be adopted by preference and with great advantage in the third, except when the patient presents the smooth and shining state of the tongue deprived of epithelium, the epigastric sensibility, signs of an approaching end, and of pulpy softening of the gastro-intestinal mucous membrane.

To facilitate the tolerance of antimony, M. Fonssagrives has varied a little his formula, and has replaced the laurel-water, for example, and the syrup of orange-flowers, by fifteen grammes of syrup of gentian and one gramme of tincture of quassia. To render the dose more sedative in cases where the fever is more obstinate, he adds to tartarised antimony, or preparation of opium, which he employs always in the same doses, two granules of digitaline, with or without a bitter, and still in 120 grammes of the vehicle. Finally, M. Fonssagrives insists of the necessity which has long been recognised of making the patient gargle with strictness, and wash the lips after each antimonial draught.

After having employed this treatment, I remain without much enthusiasm for it as a general treatment of cases of phthisis without fever. In the first place I do not believe that tolerance is so easily obtained as he seems to think. In many cases tartarised antimony in four-grain doses, taken as M. Fonssagrives recommends, excites vomiting, and finally diarrhoea. I have even seen it produce real poisoning and death. Nor do I think that the strength is regained so evidently under the influence of this method. We shall, however, presently find that in certain complications of phthisis this agent is clearly indicated, especially as indicated by Fodéré, in combatting bronchitis, catarrh, and those pulmonary congestions which occur in pulmonary phthisis, and hasten its fatal march.

ON THE PARALYSIS OF CHILDREN ACQUIRED DURING DELIVERY. By DR. SEELIGMÜLLER, OF HALLE. *

(Concluded from page 803.)

Dr. Seeligmüller relates six cases personally observed by him. [The narratives are abridged.]

Case 1. *Inter partum paralysis of both arms without complications, after difficult extraction with turning.*—Dr. Fritsch, under whom the woman was delivered, stated that the pelvis of the mother, who

was a primipara, was universally small. The head was extracted with much difficulty after a delay of about ten minutes. Both arms were paralysed; no separation of the epiphyses nor fractures were discoverable. Laceration of the brachial plexus was diagnosed. When seen by the writer at the end of the fourth week, the child was strongly developed; it had almost complete paralysis of both arms. A trace of movement could be observed in the right arm, but it was very limited. Both arms were strongly rotated inwards, the hands in extreme pronation, with the wrist-joints bent and directed towards the ulnar. In the right arm, faradaic excitability was reduced, but not entirely gone; in the left upper extremity from the shoulder to the hand, it was *nil*. The extensors and flexors of the left forearm were only excited by a strong, continuous current of forty large elements of the Siemens-Halske instrument. The child was locally faradised two or three times a week; and the mother was directed to make passive rotation of the upper arm. A perceptible improvement did not take place until very late; a positive amelioration only at the end of five months; the left arm was now found not atrophied when compared with the right. Only very slight inward rotation was present; the extensors of the left forearm were excited by the faradaic current, although not so strongly as the right; and the child, when given a stick, could hold it in the usual way.

Case 2. *Inter partum paralysis of the right arm complicated with fracture of the neck of the scapula and the clavicle.*—Professor R. Volkmann transferred the case for electrical treatment at the ninth month, with the diagnosis of paralysis of the right arm, in consequence of fracture of the neck of scapula and the clavicle (*inter partum*). The medical man stated that, as far as he could remember, it was a very rapid breech-case, the pains being exceeding strong; the arms were delivered as usual. The right hand was felt along side of the knee, and hanging down in the pelvis; it was at birth considerably red and swollen. The nurse did not observe that the arm was powerless for some time, and still later found a fracture of the clavicle. The older the child grew, the more marked became the paralysis. When first seen, distinct movement between the body of the scapula and the head of the humerus could be made out, with slight shortening of the clavicle, and a circumscribed thickened spot in the middle of this bone. The only movement the patient could make with the arm was a slight elevation of the shoulder-joint; with this uplifting the arm was rotated still more inwards and adducted; the child had the habit of moving the arm towards the mouth. The fingers were slightly flexed, but no movement in them had been noticed. The most remarkable thing was that the right arm was at least as large as the left, its length the same; the temperature to the touch seemed equal in both arms. The extensor and interossei muscles of the right forearm were not excited by the continuous current, even when very strong; the excitability of the flexor muscles was much diminished, also that of the muscles of the upper arm in a less degree. The shoulder-muscles, especially the deltoid and trapezius, were of normal excitability. No contraction could be produced by the continuous current, in the muscles of the forearm, not even of the flexors. The patient could bear with impunity the strongest secondary induction-current on both sides of the forearm, hands and fingers, even till sparks flew across; but the moment

* *Berliner Klinische Wochenschrift*, October 5 and 12, 1874.

a second weaker current was applied to the region of the deltoid or shoulder he cried out. An affection of the cervical sympathetic nerve was observed by the writer in this child, and published in the *Berliner Klinische Wochenschrift*, 1870, no. 26.

After a very unsatisfactory course of faradisation, considerable improvement in the condition of the child was effected. The upper arm was rotated more outwards, the fingers could move somewhat, and the hand which, from the inward rotation of the arm, was helpless, could now hold a stick firmly when placed in it. The sensibility had improved, and the application of a moderately strong secondary induction-current upon the palm caused the child to cry out. The faradaic excitability of the muscles of the forearm and of the extensors had improved. Reflex movements by tickling the hollow of the hand could not be produced. The child was now removed away for treatment.

Case 3. *Inter partium paralysis of the left arm, in the beginning most likely of the facial nerve also, complicated with fracture of the left clavicle.*—The child was a third one. The head was born some time before the shoulders could be delivered, and the midwife brought down the arms. On the third day swelling of the left shoulder was discovered, as also of the left half of the face, which remained thicker, redder, and warmer than the right. The left ear was not observed; the mouth was drawn to the right, and the left nostril lengthened, and smaller than the right; the tongue was affected, and the saliva dribbled from the right side of the mouth; the head, which was inclined to the right, at the end of about three months gradually recovered itself; the left shoulder remained deformed; the arm atrophied, and its growth was arrested, and it could move but slightly. Professor R. Volkmann, on sending the case to Dr. Seeligmüller, stated that the left cheek was larger than the right, the left half of the thorax was less developed than the right (the nipple was lower down), the left clavicle was shorter, with the remains of a callosity on it about one to two inches from the top of the acromion. The left arm was much atrophied, flexed at the elbow, and lying flaccid alongside of the trunk. At the shoulder-joint there were only the slightest movements perceptible of the arm forwards, backwards, and outwards; the fingers were flexed and distinctly movable; the nails on the left hand were long, but normal; the whole of the left hand and the thumb were arrested in growth. The left lower extremity was normal. With faradaic excitation, for a certainty, only the flexors of the forearm contracted; with galvanism not even these. The child was one year old when first seen; when next seen at the end of four and a-half years the paralysis of the arm and its accompanying phenomena are more marked; the deformity of the shoulder was worse. The clavicle was 0.4 inch shorter than the right. The thickened point of fracture formed an angle looking upwards and outwards. The left half of the chest was considerably smaller and was deformed, besides which, the growth of the scapula was arrested, and its spine was 1.2 inch shorter than its opposite. The whole of the upper extremity was extremely atrophied, and all its bones were arrested. The deltoid had entirely disappeared, the biceps and brachialis were a mere cord. On the dorsal side of the forearm the flesh could barely be felt. The elbow-joint could only be extended to an obtuse angle, and bent to a right angle, apparently from some obstruction in the joint itself; its exact nature could not be made out. The whole

joint seemed thickened, the limb felt colder than the other. The nails were well grown. The patient could bend the forearm actively on the upper arm to a right angle; a stretching of the remainder of the flexors could be distinctly felt. The ability to elevate the shoulder was *nil*. The arm and hand could be with difficulty moved behind the hips, but it could bear comparatively a considerable weight. There was still a trace of the facial paralysis at the angle of the mouth. It was a remarkably healthy and intelligent child.

Case 4. *Inter partium paralysis of both upper extremities complicated with luxation of the head of the radius and ankylosis of both shoulder-joints.*—The child, five and a half years old, was transferred to Dr. Seeligmüller by Professor R. Volkmann for electrical treatment. The labour was said to be difficult; it was a cross-birth with prolapse of the arms; after turning, there was some trouble in getting the arms down; as soon as born, it seems that both arms hung down powerless by the side, and when placed to the breast they fell over the child's head. The crippling of the hands was observed soon after birth. The child, although small, was quite healthy and very intelligent. The right hand was turned acutely towards the ulnar side and flexed on the forearm; the fingers were moderately flexed and crooked towards the radius. Neither the wrist nor the fingers could be extended, but passively it could be done easily on account of their excessive flaccidity; if placed on a splint for long, they would for a time retain their right position when taken out of it. The ulnar position of the wrist-joint was produced by the complete paralysis of the extensor carpi radialis which was not excited by the most powerful faradaic current, whereas the excitability of the extensor digitorum communis and the extensor carpi ulnaris was reduced. The flexors of the forearm reacted the best. The left hand was still more deformed. The ordinary position of the arm was between the prone and supine, arising from the luxation of the head of the radius; the wrist was slightly flexed, the hand stood like a claw, and was with difficulty straightened; the thumb was exceedingly hooked, and appeared like a mere appendage. The left arm was the weaker of the two. The sensibility of the left hand was considerably reduced—of the right, less so; still it could receive a tolerably strong current without crying. The faradaic excitability in the muscles of the shoulder and upper arm on both sides was reduced. There existed a certain difficulty in movement in the shoulder-joint, which prevented any passive movement backward, and permitted only the slightest possible passive movements in other directions. The electro-cutaneous sensibility of the shoulder and upper arm seemed normal. The excitability of the muscles of the forearm, with the exception of the flexors, which were slightly excitable, was *nil*. The biceps showed no signs of reaction, the triceps only a trace. The galvano-muscular excitability was to a certain extent diminished in all the muscles. The enforced rest of the shoulder-joint, and consequently of the shoulder-blades, expressed the relative smallness of the latter. A long-continued faradisation produced no benefit.

Case 5. *Inter partium paralysis of the left shoulder, complicated with fracture of the lower portion of the scapula.*—The patient, a girl, was fifteen years old when referred by Professor R. Volkmann to the author. She presented extreme deformity of the left

shoulder, which was observed soon after her birth. She was a tall, thin, and pale-looking girl, with deformity of the whole of the back. The left shoulder-blade had a remarkable appearance; the superior internal angle of the scapula was elevated above the left shoulder line, whilst the internal border ran obliquely to the spine; the inferior internal angle nearly touching the spinous processes. The left scapula was much smaller than its fellow, the fossa infrascapula was distinctly curved concavely outwards; obliquely across it was felt a ridge, which evidently represented the parts fractured *inter partum*. The left upper extremity was less developed than the other. Various movements were possible with the left arm, but less prompt and energetic than with the right. The right shoulder-blade was of normal size and shape, but stood out somewhat funnel-shaped from the thorax. This deformity yielded considerably during the six months' treatment. The muscles of the left shoulder-blade, from the long continuance of their abnormal position, had lost their function of contractility, so that the strongest faradaic current was unable to excite some of them; the most that could be done to improve the position was by exciting the *teres major*.

Case 6.—*Fracture of neck of the scapula with luxation of the head of the humerus backwards*.—The child was three and a-half years old when seen. Its right upper arm was broken *inter partum*, whilst delivering the arms, turning being requisite on account of cross-birth. There was considerable movement of the arm, but inability to move it backwards or above an angle of 45° forwards. The faradaic contractility of the muscles was retained. The right arm was shorter than the left.

W. C. GRIGG, M.D.

DR. SEGUIN ON THE PHYSIOLOGY AND PATHOLOGY OF THE NERVOUS SYSTEM.

Dr. Seguin (*New York Medical Record*, Dec. 1), sums up an able outline of the physiology of the nervous system in the following propositions.

There are four generalised functions in the nervous system.

1. Sensation and perception are executed by means of paths which decussate almost horizontally in the spinal axis; the conduction being by the gray matter, not by the white columns of the cord; coarse sensibility with doubtful consciousness has its seat in the pons Varolii; perfect perception and appreciation is possible only with the help of the cerebral mass.

2. Motion is executed through motor impulses, which, starting from the opto-striate bodies (from cortex of cerebrum also?) traverse paths which decussate almost opposite the motor nerves as far down as the lower margin of the medulla oblongata, where the paths for the trunk and limbs decussate in a bundle, to remain, below this point, in that half of the spinal cord whence arise the nerves going to the muscles.

3. Reflex action is the result of a transformation of an irritation from the periphery into nervous force by a nerve-cell, transmitted centrifugally by a second nerve. That all nervous phenomena are of reflex mechanism, is not to be too positively denied.

4. Co-ordination is no faculty, but a function of every portion of the motor tract of the spinal axis from the origin of the third cerebral nerve down.

There are a few pathological laws logically allied

to the physiological propositions enumerated above, which I wish to submit.

1. Any disease of any part of the nervous centres may produce two kinds of symptoms, which we should always attempt to distinguish, these being symptoms of irritation, consisting, according to the location of the lesion, in exaltation of ideas, delirium, in numbness, pain, and in spasmodic movements; and symptoms of destruction of parts, loss of mental power, anæsthesia, paralysis. Brown-Séquard was, I believe, the first to insist upon the exceeding importance of distinguishing these two classes of effects.

2. It should be borne in mind that irritating lesions may cause the second class of symptoms by producing an inhibitory (arresting) effect upon centres near or distant.

3. Ischæmia of the nervous centres produces extreme irritation symptoms, delirium, spasms, pain, and numbness, followed by loss of function of parts.

4. The effects of hyperæmia are not satisfactorily known.

5. A want of equilibrium in the circulation of both hemispheres is a common cause of vertigo.

6. Almost any lesion of the nervous centres may disturb the nutrition of distant (non-nervous) tissues.

7. A generalised lesion of the convolutions of the brain produces, first, exaltation of mind and emotions, followed by abolition of the faculties, and a false general paralysis.

8. A lesion of one cerebral hemisphere gives rise to symptoms (paralysis, numbness) in the opposite side of the body and face. The localisation of the lesion in the left hemisphere about the fissure of Sylvius, is exceedingly likely to abolish language spoken and written; while lesions of the right hemisphere produce more severe palsy, set the emotions free, and endanger life more.

9. A lesion of the centre of the pons Varolii will produce general paralysis, with probably anæsthesia and changes in the bottom of the eyes.

10. A lesion in one-half of the pons Varolii will produce palsy with (probably) anæsthesia in the opposite side of the body.

11. Lesions of the cerebellum when in one lobe produce an incomplete hemiplegia on the opposite side, with marked eye and stomach symptoms.

12. A suddenly produced lesion of the centre of the medulla oblongata will probably kill the patient at once by arresting respiration.

13. A lesion localised in one-half of the medulla oblongata will give rise to hemiplegia and anæsthesia on the opposite side.

14. A lesion at the base of the brain, not on the median line, will produce a crossed palsy (as first indicated by Romberg); palsy of the body on the side opposite the lesion, and palsy of one or more cranial nerves on the same side as the disease.

15. Pressure anywhere within the skull may affect the nutrition of the optic nerves.

16. In lesions of the cerebral hemispheres accompanied by coma (apoplexy), the eyes are together turned and fixed towards the side of the lesion, and away from the palsied side.

17. A lesion occupying the whole thickness of the spinal cord, or its grey matter, will give rise to palsy of all parts below the lesion, *i.e.*, below the distribution of nerves issuing from just above the lesion; and such a paraplegia is necessarily attended by anæsthesia, and increased reflex movements in palsied parts.

18. A lesion in one-half of the spinal cord (hemisection, Brown-Séquard), at any point will produce paralysis with hyperæsthesia on the same side as the lesion, and anæsthesia on the opposite side.

19. A lesion involving the posterior columns of the spinal cord produces neuralgia and ataxia of movements.

20. A lesion affecting the lateral columns of the spinal cord will cause a paralysis accompanied by contracture.

21. A lesion of the cells of the anterior horns of the cord alone will produce a palsy (no anæsthesia), accompanied by extreme wasting of muscles, and loss of electro-muscular reaction. Any part of the spinal axis may be the seat of this disease.

22. A lesion (destructive) of nerve-trunks gives rise to a paralysis with anæsthesia, and rapid loss of electro-muscular reaction.

23. A lesion in the cerebrum and the opto-striate bodies may produce secondary lesions in the spinal cord and nerves.

24. A lesion of the spinal cord may cause secondary lesions upward and downward in the cord, and in nerves.

25. Lesions of nerve-trunks may produce secondary lesions of the spinal cord.

ANATOMY AND PHYSIOLOGY.

THOMA ON THE INFLUENCE OF THE CONCENTRATION OF THE BLOOD AND TISSUE-JUICES ON THE CHANGES OF FORM AND PLACE OF THE COLOURLESS BLOOD-CORPUSCLES.—R. Thoma (*Virchow's Archiv*, vol. lxii. Heft 1), has made investigations on this subject.

1. *Influence of the Concentration of the Surrounding Fluid on the Amœboid Movements of the Colourless Blood-Corpuscles removed from the Body.*—Blood of the frog, placed in a gas-chamber, and from which water was removed by the passage through it of a stream of air, showed that, in the portion of blood poor in water, the number of round motionless colourless corpuscles surpassed considerably the number of those showing changes of form. In blood in which the quantity of water was increased, the greater number of the colourless corpuscles showed the branched forms, such as are produced by the flowing movement of protoplasm. Those corpuscles which adhere to the cover-glass are more spread out, show clearly three or four nuclei, and bear more richly branched processes, oftener contain vacuoles, and show more lively changes of form than those floating free in the fluid. This is, without doubt, due to the action of the surface, and is produced by strong adhesion of the body of the cell to the surface of the glass. This property also belongs to a series of other solid bodies, and also to the intima of the vessels. The white blood-corpuscles become more sluggish in their changes of form with increase in the concentration of the fluid, and the greater number change into rounded cells, which sometimes have fine processes on their surface. This is not due to death of the corpuscles, for on increase in the quantity of water they again become lively in their movements, and resume the properties of freshly drawn white blood-corpuscles. These observations were made in the blood of *Rana temporaria* and *esculenta*; but the same is also true for that of *Salamandra maculosa* and *Triton cristatus*, and

also for that of warm-blooded animals; at least for the guinea-pig and dog. Under the influence of water, the contents of the white corpuscles may be increased four times, and this can only be regarded as an imbibition phenomenon.

2. *Experiments on Colourless Corpuscles circulating in the Blood*, produced by injection of water into the circulation of the frog.—Besides unchanged colourless corpuscles, there are a large number which show forms such as can be produced in blood under the influence of water outside the body. Those which lie upon the walls of the vessels exhibit very lively changes of form. In an opposite experiment, frogs were exposed for several days to evaporation. Microscopic observation showed that in the tongue, under these conditions, no amœboid movements were to be observed in the corpuscles circulating in the blood, and also in those touching the walls of the vessels; and the injection of a 3 per cent. solution of common salt into the veins showed that increase of the quantity of salts acted quite in a similar manner to the regular concentration of the blood by the evaporation of water from the surface of the skin.

3. *Experiments on the Wandering Cells in Living Tissues.*—The question was, whether colourless corpuscles which have wandered outside the vessels are influenced in a similar manner by differences in concentration of the tissue-fluids. The cells which have wandered out into the tissue shows the lively amœboid changes of form and place, whilst, by infusion of a 3 per cent. salt solution and evaporation from the skin, the amœboid movements of the wandering cells become slower and very soon cease altogether. The same was observed with a 1.5 per cent. solution, the colourless corpuscles becoming round and shining, and changes of place could no longer be observed of them; whilst with a 0.5 per cent. solution the changes both of form and place were very lively. Irrigation of the frog's tongue with salt solution of various strengths also produced important changes in the calibre of the blood-vessels, and therefore on the rapidity of the blood-current. Under irrigation by a 0.5 per cent. solution, a very plentiful out-wandering, specially from the small veins, takes place, while in the same organ with a 1.5 per cent. solution, the wandering out of the colourless corpuscles is completely suppressed. This solution acts first on the blood-vessels, producing a pronounced dilatation of the arteries, and therewith an acceleration of the blood-current in the arteries, capillaries and veins, as Wharton Jones had already proved, and which, as H. Weber, F. Schuler, Buchheim, Vierordt, etc., showed, depends essentially on the diffusion of the blood-plasma with the salt solution. The acceleration of the blood-current is so considerable, that the venous current takes on part of the characteristics of the arterial one. Specially, the marginal position of the colourless corpuscles disappears. The second effect of the 1.5 per cent. solution of common salt is its influence on the changes of form and place of the colourless corpuscles.

The chief results of this investigation are, first, that changes in the quantity of the salts and the concentration of the blood and tissue-juices, within those limits which are compatible with the existence of the animal organism, exercise a powerful directing influence on the changes of form and place of the colourless corpuscles. Concentration of the tissue juices causes these corpuscles to lose their property of changing their form and place, so that they be-

come round and shining. These phenomena may last for days, until a dilution of the tissue-juice is again produced, when the lively changes of form and place of the corpuscles begin again. Thus they show a tolerably wide similarity with vegetable protoplasm, as pointed out by Kühne on the *Myxomycetæ*.

Secondly, it is proved that the wandering out of colourless corpuscles from the vessels of the frog's tongue, in spite of a large loss of substance, can be completely hindered by the irrigation of the wound with a 1·5 per cent. solution of common salt, that it is hindered by the thickening and increase of the salts of the blood. By irrigation with salt solution, of the above concentration, the action depends upon the acceleration of the rapidity of the current caused by the continuing dilatation of the arteries, and on the direct influence upon the protoplasm of the colourless corpuscles of the blood. The acceleration of the venous current prevents the marginal position of the colourless corpuscles, and in this way extinguishes the first condition for the out-wandering of the same from the veins. The influence of a 1·5 per cent. solution of common salt stops, during the irrigation, change of form of the protoplasm of the colourless corpuscles, and simultaneously their out-wandering from the vessels, and every obvious change of place in the tissues.

W. STIRLING, D.Sc., M.B.

MAYER ON DIRECT ELECTRIC EXCITATION OF THE HEART IN MAMMALS.—In a recent communication to the Vienna Academy (*Sitzungsberichte*, Band lxviii., 1 to 3 Hefte), M. Sigmund Mayer gives details of his experiments on this subject (which had been previously studied by Einbrodt and some others). The animals experimented with were dogs and cats; they were curarised, and arrangements were made for artificial respiration. As a rule, the thorax and pericardium were laid open, and the heart stimulated with currents; the electrodes being needles. For induction currents Du Bois-Reymond's apparatus was used, charged by two Daniell's elements.

On applying the electrodes, and pushing the distant secondary coil slowly towards the primary, the first effect, in the kymographic curve, is that the blood-pressure, at a certain not very great strength of current, suddenly sinks very low; it is at first like what occurs on strongly stimulating the vagus. Next, one is surprised to find the pressure, in many cases, show no sign of rising again, and that the elevations corresponding to heart-beats totally disappear; in short, that the animal, after stimulation for two or three minutes, with a moderate induction current, is dead. In the heart itself the contractions cease, and the muscular substance is thrown into an irregular rapid trembling; the heart swells and is found filled with dark red blood.

Now in the case of stimulation of the inhibitory fibres in the vagus, the cessation of the heart's motion is only for a few seconds; though the stimulation is continued, it begins again to beat rhythmically and strongly, and raises the blood-pressure; and after stimulation has ceased, the pressure further rises. There is none of the irregular trembling. Direct stimulation of the heart with induction-currents thus appears to act as a strong 'heart-poison,' in the case of animals which (as the above) have not been greatly altered by various operations (tying, curarising, loss of blood, etc.); whose temperature, especially,

has not been greatly lowered. In this other case, the phenomena are somewhat different. The weaker currents (of a duration of two to five minutes) may not prove fatal to the heart's action, but after stimulation ceases, the blood-pressure may rise again, the irregular tremblings combining into a normal systole; at certain points the trembling ceases, and a regular contraction is there observed. Thus, as the animals, by cooling, come nearer the condition of cold-blooded animals, there is the more reason to expect that the effects of direct stimulation will be counteracted.

The author next operated with constant currents. Between the battery (1 Grove, or 1 to 4 Daniell) and the electrodes, was inserted a Du Bois-Reymond-Sauerwald rheochord and a commutator. While M. Mayer's results with the induction-currents agree in the main with those of M. Einbrodt, they quite differ in the case of constant currents. On moving the steel slide of the rheochord from zero, the first action expresses itself, in the kymographic curve, as a sinking of the blood-pressure, along with irregularities and intermissions of the heart-beats; and is better seen on direct inspection of the heart. With a very weak continuous current, the previous heart-beats and blood-pressure soon return. On increasing the current, these phenomena are intensified, till at length, with a certain strength of current (not very great), the action of the constant currents and that of the induced currents correspond, that is, the constant current also calls forth the above described great disturbances in the co-ordination and power of the heart-contractions. This is quite in contradiction to M. Einbrodt, who finds the heart-motion at first more and more accelerated, the blood-pressure increased; this increase reaching a maximum, with increasing current, and diminishing (as the current is further increased), until, finally, the heart stops in diastole, and the animal dies. M. Mayer found no acceleration of the normal heart's action (the irregular contraction-waves could not be called normal heart-action), and no increase of pressure. And he points out that his method ensured that all values of the current from zero upwards should act. Further, Einbrodt's animals were not curarised, and the rise of pressure may have had other causes; and in one instance the pressure did not rise, but sank from 129 to 23·4 millimètres. The author thus cannot agree with Einbrodt's affirmation, that only constant currents of a certain strength are like induced currents in their action. He finds that induced and constant currents act alike, inasmuch as, on passing into a normally contracting heart, they produce intermissions in the heart-beats, and change the normal contractions into an irregular agitation (*Wogen und Wühlen*), which can no longer maintain a high pressure in the internal system. Thus, Einbrodt's proposed method 'for suddenly increasing the blood-pressure within no inconsiderable limits, by action of the heart alone,' viz., by stimulation with the constant current, can hardly prove successful. M. Mayer further found by experiment that stimulation of the inhibitory fibres of the vagus had no effect on the irregular motions produced by direct stimulation of the heart, and he hence also infers that this motion is different from the normal heart-contractions.

In accordance with his results, he dissuades from electric stimulation of the heart (when that organ is insufficiently active), as a very dangerous method.

In Steiner's experiments on electro-puncture, there was no guarantee that the heart was actually penetrated by the currents. What is permissible with other muscles cannot be applied to the heart-muscle, which morphologically and functionally occupies a distinct position by itself.

SERVEL ON GENERATION AND EVOLUTION OF BACTERIA IN ORGANIC TISSUES PROTECTED FROM CONTACT WITH AIR.—The author stated to the French Academy (*Comptes Rendus*, November 30) that his experiments were suggested by some ineffectual attempts he made to harden large fragments of cerebral substance with chromic acid. If the tissue be not treated in thin slices, the central parts of the piece, not being reached by the acid, undergo putrefaction.

In the five experiments now to be noticed, he used a solution of chromic acid, containing one part in 100.

The first two experiments were on guinea-pigs (in October, 1874). The live animals were decapitated so that the head fell at once into the chromic acid bath. In both cases, the results corresponded to those with the cerebral substance. Examined six days after immersion, the outer parts of the head were hard and preserved; but the central parts were in manifest corruption; under the microscope, the cerebral pulp presented a large number of bacteria of all sizes.

Feeling, however, that in these experiments the absence of air-germs was not sufficiently demonstrated, as the deep parts of the nasal fossæ or the buccal cavity might possibly have retained them notwithstanding the immersion, M. Servel repeated the experiment with the liver or kidney of dogs, killed for this purpose by femoral bleeding.

To eliminate sources of error, and especially entrance of air by the wound, he placed a ligature at the level of the hilum of the liver and the kidney to be experimented on; then he completely removed these organs, preserving their envelope of connective tissue throughout its extent. The threads of the ligature were used to suspend the organs and keep them from contact with the sides of the vessel containing the solution. This experiment, repeated three times (in October and November) on two hunting dogs and a shepherd's dog, gave the following results, after five days immersion (the average surrounding temperature being fifteen degrees). The liver and kidney were more voluminous than in the fresh state, elastic to pressure. The surface was hardened throughout, and gave the peculiar odour of organs immersed in chromic acid. On section, there was emanation of fetid odours. Under the microscope, the outer layer was found entire; the central parts were full of bacteria, showing characteristic movements; some, in the liver, were large, some enlarged at one end (*Bacterium capitatum*); in the kidney they were fewer, thinner, and more mixed with cells still intact. The solution of chromic acid at once arrested the movement of the bacteria.

Hence M. Servel concludes: 1. That MM. Bechamp and Estor's demonstration of the production and evolution of bacteria in organic tissues protected from air-germs is quite exact: 2. That the effect produced by preservative agents is the death of microzymes or molecular elements surviving in the organs.

PATHOLOGY.

ZAHN ON THROMBOSIS.—From his experiments and observations, Zahn (*Virchow's Archiv*, Band lxii. Heft 1, Nov., 1874) distinguishes thrombi into the red and the white. The former are produced by coagulation of the blood within the vessels; the latter would form the deposition and the gradual accumulation of colourless blood-corpuscles. Mechanical injuries, such as straining, tearing, or cutting, or chemical irritants, as ether, ammonia, croton oil, turpentine, and chloride of sodium applied to blood-vessels, lead to the formation of thrombi. The intensity and the duration of the injury, together with the previous condition of nutrition of the individual, determine the durability of the clot. The process of formation is the following. Colourless blood-corpuscles adhere to a part of the intima denuded by an injury of its endothelium. They accumulate there, form a ringlike obstruction, and gradually the clot obstructs the vessel altogether. If the injury be slight, and the nutrition of the individual unimpaired, the current of blood soon breaks through the blood-clot, and carries along the flakes of the colourless blood-corpuscles. The normal condition is soon restored. If the injury of the vessel be more severe, and the surrounding tissue already in a state of irritation, the thrombus, whilst forming in the same way as described, is firmer and larger. The obstruction is more complete, and lasts for twenty-four hours and more; after that period the thrombus begins to disintegrate into granular fibrine, the outlines of the blood-corpuscles composing the thrombus cease to be visible, and thus an uninterrupted circulation is re-established.

ZIELONKO ON HYPERTROPHY OF THE HEART.—Hypertrophy of the heart depends, according to Zielonko (*Virchow's Archiv*, Bd. lxii. Heft 1, November, 1874), upon the development of the young cells already present within the substance of the heart into muscular fibres, and probably also upon a new formation of them. The free-existing muscular fibres do not show an increase of their volumes. On the whole, the age, the general nutritive condition of an individual, together with local inflammatory processes, favour the development of hypertrophy of the heart, whilst the increased amount of work which the organ has to perform does not appear to have the same influence. Those changes also occur most frequently in youth, when the stimulus to the development of the organ is most powerful.

I. B. BERKART, M.D.

CAYLEY ON RENAL CALCULUS.—At a recent meeting of the Pathological Society of London, Dr. Cayley showed a renal calculus which was discharged through a fistulous opening in the loin. The patient is now thirty-three years of age, and in good health. Seven years ago he suffered from an abscess in the right lumbar region, which discharged for about three years. About six months after its formation, the calculus came out. It was of irregular club shape, the size of a hazel-nut, with a facet at the narrow end as if it had been broken off. Two smaller calculi subsequently ulcerated out, one close to the crest of the ilium, and one below the great trochanter, the scars still remaining.

MEDICINE.

BRUGELMANN AND KLINGELHÖFFER ON TRANSFUSION OF BLOOD.—The *Berliner Klinische Wochenschrift*, for August 24, 1874, contains a paper by Dr. Brügelmann of Cologne, on a case of phthisis cured by inhalation and transfusion of lamb's blood. A bookseller, W. L., aged thirty-three, slightly built, small and weak, had diarrhoea, night-sweats, cough, and loss of appetite. He had also catarrh of the stomach, brought on, it was supposed, from swallowing the expectoration. Inhalations of chlorate of potash and morphine were used with only partial benefit. On October 9, at 12.50 P.M., transfusion was performed with a May lamb. Before the operation the pulse was 100; temperature 37.4° Cent. (99.3° Fahr.). It was performed in the presence of Professor Max Müller and others. After thirty seconds the sight became affected; at the end of forty seconds the face was redder, and there was some perspiration, followed by redness of the extremities. Then came dyspnoea and cyanosis, with pains in the epigastrium; and, after eighty-five seconds, a feeling of faintness when the transfusion was stopped. The dyspnoea and cyanosis lasted ten or fifteen minutes after the transfusion was discontinued. At 1.12 P.M. came rigors lasting about an hour, with quick weak pulse. At 3.50 P.M. the pains had disappeared, and the patient asked for food. The colour of the skin was better than before the transfusion, and moist. October 10, the pulse was 106, temperature 38.8° Cent. (102.8° Fahr.), he felt stronger; the expectoration contained a little blood; the arm was painful; his appetite was improved, and his sleep good; there was no hæmaturia. On October 11, he was improving in every way. On November 20, he was able to take long walks and to work at his business. The cough and expectoration were less; he was gaining flesh. The pulse and temperature were normal. The improvement seemed to be aided by inhalations containing perchloride of iron.

The same journal contains an account of four cases of transfusion, contributed by Dr. Klingelhöffer, physician to St. Rochus Hospital, Mayence.

The first was a case of mediate transfusion with defibrinated human blood. H. A., aged thirty-nine, a merchant of Mayence, had ulcers of the stomach and symptoms of phthisis, with hæmoptysis or hæmatemesis, or both, and bloody stools. He being reduced to a great state of weakness, transfusion was proposed. On April 16, at 7 P.M., the blood (about twelve ounces) was taken from a strong man, aged between thirty and forty, and, after being defibrinated, was transfused into the median vein of the patient's right arm. During transfusion, he became warmer and the pulse stronger. The colour of the skin reddened, and there was free perspiration. An hour and a half later, there was a distinct shivering fit, with oppressed breathing, which soon passed off. In another two hours he appeared pretty well. On April 17, he slept well and felt better. The pulse and temperature were normal. On April 19, he was apparently doing well. On the 20th, he had numerous bloody stools; and on the 21st he died suddenly. *Post mortem* examination revealed extensive disease of the lungs, liver, stomach, and intestinal canal.

The second was a case of direct transfusion with lamb's blood. R. W., aged twenty-seven, had caries

of the bones of the arm, which was amputated. He then had abscesses and general cachexia (probably pyæmia), and was reduced to a great state of weakness. Transfusion was performed on May 18, in the presence of several physicians. In the morning the pulse was 74; respiration 16; temperature 37.2° Cent. (98.96° Fahr.). The lamb was four weeks old. The operation was commenced at 4.35 P.M., and lasted 160 seconds. The patient soon began to feel an agreeable warmth; then fulness in the chest; afterwards he had pains in the stomach, and general pains and distress, and said he could bear it no longer. The pulse became fuller, the face red, the breathing quick and difficult. An hour and a half after the operation there was a rigor, which lasted about forty minutes. After this followed heat and perspiration. At 8 P.M. the pulse was 95; the temperature 38.3° Cent. (100.9° Fahr.). He slept well during the night, and on waking in the morning felt better. There was more colour in the face; his appetite and strength were improved. In the end, however, there was no permanent benefit; for on May 6 the patient is reported as being about the same as before the transfusion.

The third case was that of C. M., aged thirty-seven, a shoemaker, who came to St. Rochus Hospital with cough, great debility, etc.; pulse, 80; morning temperature 36.2° Cent. (97.16° Fahr.). Transfusion was performed on May 30, at 3.30 P.M. During the operation he suffered much from pains in the back, chest, and stomach. Rigors set in in half an hour, and lasted about an hour. At 5 P.M. the pulse was 120, the temperature 40.6° Cent. (105° Fahr.); at 8 P.M.—temperature 38.5° Cent. (101.3° Fahr.); at 12 P.M.—temperature 36.5° Cent. (97.7° Fahr.). He slept well. In the morning the temperature was 36.6° Cent. (97.9° Fahr.); the pulse 80. The wound in the vein became inflamed, but it soon subsided. On June 6, the patient is reported as being improved, and having less cough and expectoration; but, as in the previous case, there was no permanent benefit.

The fourth case was that of Elise H., aged thirty-three, a nun, who entered the hospital on October 22, 1872. She was very weak, anæmic, and hysterical; had vague pains in all parts of the body; could not walk, and was often convulsed—the convulsions being of a tetanic type. As all the usual remedies proved of no avail, transfusion was tried. The operation was performed on May 30 at 4 P.M., the same lamb being used as that employed in the third case. Just before the operation the temperature was normal (37.2° Cent. = 98.96° Fahr.); the pulse strong (72). After a few seconds the patient said the arm felt warm, and complained of pains in the back and head. In about two minutes it was found that the blood had ceased to flow, owing to clots having formed in the instrument. This was rectified, and at 4.30 the operation was renewed and lasted fifty seconds. After ten seconds she said she was becoming warm, and then that she had pains in the stomach and head. In thirty seconds there was oppression of breath, and after fifty seconds she cried out that she was choking and could bear it no longer. Transfusion was at once stopped, and the patient placed in a half-sitting posture. The face was very red, the breathing short and difficult, and the pulse slow and hard. Suddenly a great change came over her, and she appeared as if dying. The face became cyanotic, the features shrunk, the nose pointed, the eyes sunken, the forehead and other parts of the body were laden with

perspiration, the head sank back, there was no radial pulse, the skin was cold, the respirations thirty-six, and there was foaming at the mouth. Auscultation showed weak tumultuous heart-sounds, and much wheezing. She appeared to be conscious, but could not speak. It was thought to be embolism. Wine, ether, and coffee were given freely, and sinapisms applied to the chest and legs. Under the impression that too much blood had been transfused, the vein in the arm was re-opened, but only about half an ounce of blood flowed slowly out: an attempt was also made to galvanise the phrenic nerves. After employing various remedies for about an hour there were signs of improvement, and at length the patient could speak. The pulse became perceptible at the wrist, but the extremities remained cold. The cyanosis gradually passed off. At 6.30 she had a rigor, and said she was freezing. This lasted until 8.30. At 9.30 the danger seemed over, the pulse was regular but weak, the breathing quieter, and she was able to talk about her condition. At her own request she had a dose of morphine, which acted well. On May 31, she had had a good night and felt better. The urine contained blood. This continued three days, and afterwards albumen was found in the urine, with fibrinous casts, as if from nephritis. This lasted more or less till June 20. For about three weeks after the operation the temperature was nearly normal, and the pulse from sixty-eight to eighty-eight. On June 1 the catamenia appeared eight days before the usual time, and for the next ten days there was a good deal of sickness. On June 13 she had erythematous spots in different parts of the body, and there had also been some cough and expectoration. On June 20 the previous symptoms had disappeared. The wound in the vein had healed, and the patient had returned to nearly the same condition as before transfusion.

[These cases do not say much for transfusion as a curative agent. It may be that the cases were badly selected, for the Italian physicians continue to extol the advantages of lamb's blood transfusion, and accounts of successful cases are frequently appearing in their public as well as medical papers. It is to be observed, however, that in Italy they do not push the operation so far as is done in Germany. As a rule, the Italians do not inject more than about half the quantity of blood (obtaining better results, and without rigors or hæmaturia) that is generally used in what is called Hasse's method, in which a point is made of continuing the transfusion until symptoms of distress appear. The details of the last case related are interesting, as showing some of the untoward phenomena that occasionally follow transfusion. The operation evidently has its dangers, some known, and some, perhaps, as yet unknown.—*Rep.*]

HENRY M. MADGE, M.D.

PIETRA SANTA ON A RATIONAL TREATMENT OF PULMONARY PHTHISIS.—In a note presented to the Paris Academy, the author upholds the doctrine of curability of pulmonary phthisis, after combatting the German theory of cellular proliferation and the fatalism of Broussais' school. For him, pulmonary phthisis is essentially a general and constitutional affection, a profound alteration of the acts of nutrition, a malady of the blood. Therefore there is no panacea for a malady (symptomated by enfeebled vitality), of which the several phases of evolution form as many distinct morbid entities. There can be no antidote for a morbid diathesis, pre-existent to local anatomic lesions which characterise the

affection. The unique specific for pulmonary phthisis is an intelligent and rational association of that collection of medicaments of which experience and chemical observation have made known the efficacy. The matter may be included in these precepts:—

1. To call to aid, during all periods of the malady, all hygienic resources—moral and hygienic treatment, pure and renewed air, tonic alimentary regimen, moderate exercise, lactic diet.

2. To utilise mineral-waters—sulphuretted, arsenical, chlorides.

3. To call to assistance the salutary effects of change of place, sojourn in temperate climates in winter, in mountainous countries during summer.

4. To neutralise the morbid ferments that engender in the organism purulent absorption, and lead to establishment of tuberculous matter. This is effected by the administration of hyposulphites and of alkaline and terrous sulphites.

5. Never to neglect the numerous general therapeutic agents, when these tend to combat the complications inseparable from each period of the malady.

PAGET HIGGS, D.Sc.

CHARCOT ON HYSTERICAL HEMIANÆSTHESIA.*—I wish to dwell particularly upon two subjects in this and the following lecture—hysterical hemianæsthesia and ovarian hyperæsthesia. I bring these two symptoms together because, generally, they are associated in the same patients.

In order to keep within bounds, I will consider only complete hemianæsthesia, as it is seen in severe cases. Even with such a severity, it is a frequent symptom, since M. Briquet found it ninety-three times in 400. The same author found it seventy times on the left, and twenty times on the right.

You know how it is in such cases. The two halves of the body being supposed separated by an antero-posterior plane, all one side—face, neck, trunk, etc.—has lost its sensibility, and, though very often only the superficial parts (external covering) is affected, sometimes the deeper portions (muscles, bone, joints) are also invaded.

Hysterical hemianæsthesia is complete or incomplete. Analgesia, with or without insensibility to heat and cold, thermoanæsthesia, is one of the most common varieties. The clearness with which the anæsthetic parts are separated from the healthy is an important character in the hysterical hemianæsthesia. On the head, face, neck, trunk, the demarcation is perfect, and corresponds almost exactly with the median line. Deserving of mention, also, is the paleness and relative coolness of the anæsthetic side. The ischæmia may be shown by the difficulty there is in severe cases of drawing blood by a pin-prick from the anæsthetic parts.

I noticed this formerly when, having applied leeches to a patient attacked with hysterical hemianæsthesia, I noticed that the bites scarcely bled on the anæsthetic side, while on the healthy side the blood flowed as usual. This ischæmia may explain certain facts considered miraculous, as in the epidemic of Saint Medard, sword thrusts did not draw blood on those attacked with convulsions. It is only necessary to suppose that these were subject to hysterical anæsthesia, and that the sword was not thrust in too deeply.

The mucous membranes are attacked on one side

* Translated and condensed from *Leçons sur les Maladies du Système Nerveux*, by J. M. Charcot. By S. G. Webber, M.D., *Boston Medical Journal*.

of the body, like the external covering. The organs of sense themselves are affected to a certain degree on the anæsthetic side. Taste may have disappeared on the corresponding half of the tongue, from the tip even to the base. The sense of smell is blunted; sight is notably weakened, and, if the left side is affected, it may offer a very remarkable phenomena, which M. Galezowski has called achromatopsia. We will return to this again.

The hysterical hemianæsthesia does not seem to affect the viscera. Thus the ovary may be hyperæsthetic, very painful on pressure, even when the corresponding abdominal wall is absolutely insensible. The ovarian hyperæsthesia and the hemianæsthesia occur on the same side, and if the former is double, the latter is usually generalised, and, consequently, affects nearly the whole body. When paresis or contraction supervene, it is always on the side of the hemianæsthesia.

The hemianæsthesia is so much the more important as it is very nearly a permanent symptom, varying only in degree, and in the intensity of its phenomena.

It is important not to forget that it is a symptom which must be sought. Many patients show great surprise when its existence is revealed to them.

As to how far hemianæsthesia, as above described, is peculiarly a symptom of hysteria, it is very seldom that it can be found with the full combination of its characteristics, caused by any other disease. If it then is well-marked, it is a valuable indication, and it will often reveal the nature of a large number of symptoms, which, otherwise, would remain doubtful. This is not absolutely true; it is especially not correct to say that 'hemianæsthesia, arising from encephalic lesions, always differs from hysterical hemianæsthesia, in that in the former the skin of the face does not participate in the insensibility,' or that, 'when it exists it is never on the same side as that of the limbs.' This is an error which has been reproduced in these very words, in the interesting thesis of M. Lebreton.

In cases which are, indeed, exceptional, but, yet, perfectly authentic, certain limited cerebral lesions may give rise to hemianæsthesia, with all the characteristics recognised in hysteria, or very nearly so.

The classical doctrine, at least, with us, is that cerebral lesions, occurring in foci which seriously affect the motor power, are almost without influence on the sensibility, especially when situated in the optic thalamus and corpus striatum.

When the lesion occurs suddenly, causing an apoplectic attack, the most marked symptom is a hemiplegia, more complete in the upper limbs, and accompanied with relaxation. In the face, the buccinator and orbicularis oris are generally affected; the tongue is also protruded towards the paralysed side. The vaso-motor nerves are also paralysed, as is shown by an elevation of temperature in the paralysed limbs.

The sensibility is not appreciably changed, or, at least, not permanently. There is no change in the special senses, unless there is some complication, as embolism of the central artery of the retina. Such is the combination of symptoms found in the vast majority of cases of hæmorrhage or softening, affecting the parts of the encephalon referred to. But by the side of the rule is a list of exceptions. There are cases, and I have seen several, where the sensibility is chiefly affected, and the anæsthesia persists, even after restoration of motion.

These alterations of sensibility may have the following characteristics: The anæsthesia affects all of

one-half of the body, being arrested exactly at the median line. The corresponding half of the face, both skin and mucous membrane, is insensible, exactly as in hysterical hemianæsthesia. It is possible, then, to observe analgesia and thermo-anæsthesia with preservation of tactile sensibility. Finally, there are, also, rare cases where, probably, the special senses were affected on the same side with the hemianæsthesia.

Almost always, when the hemianæsthesia has these peculiarities, the lesion is either entirely, or nearly so, limited to the optic thalamus. It is necessary to conclude from this that lesion of the optic thalamus is the veritable organic cause of the hemianæsthesia in all these cases?

[Then follows a brief statement of the principal arguments for and against this proposition. He concludes.]

I believe, from the preceding, that in the cerebral hemispheres there is a region, the lesion of which causes hemianæsthesia; the limits of that region are known approximately, but the localisation cannot be more clearly defined, and no one can say whether it is the parts of the optic thalamus, or of the internal capsule, or of the centrum ovale, or of the third nucleus of the corpus striatum, included in that region.

A case is referred to, in which there was trembling, resembling paralysis agitans, on the same side with the hemianæsthesia, where the special senses were affected, there being amblyopia, loss of smell and of taste on that side. He concludes, therefore, that it is very probable that complete hemianæsthesia with disturbance of the special senses, just as it is seen in hysteria, may arise, in certain cases, by a localised lesion of the cerebral hemispheres.

SURGERY.

BOUTELLE ON EMPYEMA TREATED BY FREE INCISION.—Dr. J. T. Boutelle (*Boston Medical and Surgical Journal*, October 22, 1874) reports the case of a boy, aged nineteen, who, after repeatedly catching cold, was compelled to take to his bed, with fever, severe pain in the right side, etc. When first seen, he had been in this condition for six weeks, and was greatly emaciated, had a marked hectic flush, and was sweating profusely both night and day. The physical signs showed that there was a large collection of fetid pus in the right pleural cavity, and an opening in the lung itself near the apex. He was first tapped with an aspirator between the seventh and eighth ribs, about two inches from the lower angle of the scapula, and three pints of brown, fetid, thick, frothy pus were removed. Stimulants and nutrients were ordered in large quantities, and his condition improved somewhat. Four days later, an operation was performed for the purpose of establishing permanent drainage. A knife was passed between the eighth and ninth ribs, about an inch to the right of the lower angle of the scapula, into the pleural cavity, and the incision slightly enlarged on withdrawing the blade. No pus escaped. An India-rubber drainage-tube was then pushed in about five inches, and secured by straps of adhesive plaster. The pump of the aspirator was attached to the tube, but no pus could be drawn through. After injecting a little warm water, without helping matters, the tube was drawn out, the clots were removed from its calibre, and it was re-introduced, but still no pus could be drawn through it. The tube was removed,

and a cannula introduced, but with no better result. As the patient was growing very weak, crying out with pain, and threatening to faint, the cannula was removed, and a poultice applied over the incision.

After an interval of five days, during which his condition rather deteriorated, it was decided to give ether, and to make an opening between the ribs large enough to give exit to pus. A trocar was thrust between the seventh and eighth ribs, at the point where pus had been first found, and, as it began to flow through the cannula, the latter was removed, and an incision three inches long was made through the skin, the point of puncture being at the middle of the incision. A careful dissection was made down to the pleura, the cavity of which was opened by an incision of two and one-half inches. About three pints of fetid pus escaped. On examination with the finger, a long, smooth line of adhesion was found a few inches below the incision, passing downward and backward, evidently the bottom of the sac of the abscess.

For nearly two weeks after this operation he continued to do well, his appetite being much improved. It was then found, however, that the opening in the pleura had entirely closed by granulations. The patient was again etherised, the union was easily broken up with the finger, and an opening made the length of the original incision. Not much bleeding. About a pint and a half of excessively fetid pus escaped. An India-rubber tube was then inserted, and the cavity thoroughly syringed out with warm water containing a trace of carbolic acid. The tube was then fastened in by adhesive strips.

The same treatment was continued, the thorax being washed out daily with warm water; but the patient gradually sank, and died about three weeks after the last operation. No traces of tubercle were found in the lungs.

Dr. Boutelle calls attention to the following points:

The condition of the patient; the long duration of the disease, the excessive sweating, painful bed-sores, and general prostration rendering it a most unfavourable case for operation:

The immediate relief and gain in strength which followed the evacuation of the pus, the general condition steadily improving up to about two weeks before his death:

The rapidity with which the large incision granulated together, which shows the necessity of guarding against this at the time of operation, by stuffing with lint, or inserting tubes:

The absence of tubercular deposit in the lungs after so much inflammatory disturbance:

The result of the second operation, when no pus was evacuated, showed that it is not always safe to enter the thorax very low down. The autopsy showed that this point was nearly two inches too low to enter the cavity.

SIMS ON THE MANAGEMENT OF THE PEDICLE IN OVARIOTOMY.—Dr. Marion Sims stated recently at the New York Academy of Medicine that he was satisfied that the practice of securing the pedicle with a silver wire, and returning it to the abdominal cavity, is wrong. That was the plan, however, which he adopted for twenty years; but he had been led to abandon it for the reason that secondary hæmorrhage had followed its use in two cases, in which he had seen the *post mortem*, and he abandoned its use at once. As soon as the silver wire was dropped, he resorted to the method of treatment

adopted by Dr. Peaslee at once, and continued that up to a certain date. One day he had a somewhat broad pedicle to deal with, and he introduced a double ligature; and tied one-half of the pedicle with a silk thread, and the other half with the catgut ligature. At *post mortem* examination he had found to his horror that the end of the stump was in a sloughy condition. From this case he hesitated with regard to the use of the ligature and return of the pedicle to the abdominal cavity. That sloughy state of the distal end of the pedicle was immensely suggestive. Now, to-day, he was of the opinion that securing the pedicle with the iron wire, which answers all purposes of a clamp, and keeping the pedicle outside, is the best method of management. With this view he had very much to retract of what he had said concerning the clamp in former years.

I now feel satisfied that the method introduced by Baker Brown will finally be accepted as the best, and that is the use of the actual cautery. When we get instruments perfected for applying the cautery, he believed it could be accomplished with great safety and certainty.

He proposed to have made a clamp with a gutter, so that when the pedicle was cut off even with the upper surface of the clamp, an extensive surface would be left behind for the application of the cautery, and when such a large surface of the stump had been well seared, it would be returned to the abdominal cavity. He believed that a clamp could be constructed upon this plan, which would give sufficient surface for the cautery to act upon to prevent all possibility of secondary hæmorrhage.

Dr. Sell believed that every ovariologist should go to his operations prepared for any emergency, and then use his own judgment as to whether he would adopt one or other method of treating the pedicle. He remarked somewhat at length upon the percentage of mortality attending the various methods of treating the pedicle, and concluded by saying that he was simply prefacing himself, as he purposed to review the subject in a paper at some future date.

Dr. Peaslee remarked that he used the ligature because he had never had it *slip* or *give*, if the precaution had been taken to leave the stump undisturbed after the application. He had never had a case die from hæmorrhage when the ligature was properly applied and the pedicle left undisturbed, and had never seen any indication of sloughing where the ligature has been applied. But if these accidents do sometimes occur, the same thing occurs after the use of the clamp and other methods.

FOSTER ON UNSUSPECTED CALCULI IN THE BLADDER.—Mr. John Foster reports (*The Lancet*, October 10, 1874) the case of a gentleman, aged seventy-six, who had a narrow stricture at the orifice of the urethra. He had considerable frequency in making water, but had suffered no pain, and never passed any blood. The stricture was divided, and a catheter introduced to ascertain if he emptied his bladder. With the urine came a large number of very small calculi, and, by injecting warm water, over a thousand were washed out. They had never caused him any inconvenience.

PSYCHOLOGY.

KRAFFT-EBING ON DEMENTIA SENILIS.—It is well known, says Professor Krafft-Ebing, in the *Irrenfreund*, no. 5, 1874, that diseases of the mind

may occur at all ages. Cases of senile insanity occasionally recover, but more frequently they result in exhaustion, or in rapid transition to utter fatuity. These conditions must be clearly distinguished from a complex series of psychic symptoms peculiar to the aged, seen in the expression of a senile involution of the brain coming on sooner or later, and which, both by the *post mortem* appearances, which agree in nearly all the cases, and by the extreme dementia to which they lead, form an exclusive disease, named 'senile dementia.'

The exact age at which this fatuity of the aged appears is difficult to determine, for the earlier symptoms are obscure, often only seen by a gradual change of the whole life and character, and by a transition into the physiological results of old age, viz., weakness of the memory and the will, conceit, egoism, and distrust of surroundings. This senile degeneration seldom occurs before the age of fifty, and then only as a result of typhus or other chronic constitutional processes which give an impulse to the feeble nutrition and regressive brain-metamorphosis. In the absence of such spur, and where dementia senilis is developed spontaneously, it is seldom seen before sixty to sixty-five years of age. No predisposition to it appears in one sex above the other. Hereditary taint is of little importance, and the causes seem to rest less on the objective conditions of life than on internal organic changes. The proximate cause is disturbed nutrition of the brain from insufficient blood-supply, owing to fatty degeneration of the heart and atheroma of the carotids and cerebral arteries. This rests on *post mortem* investigation, which discloses compensatory thickening of the skull, collections of serum in the arachnoid and ventricles, œdema of the pia mater, dilatation of the vessels, adhesion of the membranes to each other and to the bone, the intensity of the symptoms usually going hand-in-hand with the extent of the atrophy. The frontal convolutions show the signs most clearly, for the divisions between the convolutions are for the most part obliterated, and these are yellow. The microscope shows changes in the ganglion-cells of the cortex and in the vessels, simple atrophy, fatty and pigmentary degeneration, with occasional cysts and other coarse disease, embolisms, hæmatomata, etc.

The first signs of approaching failure of intellect are in the memory. Whilst that for past events remains, that for recent ones is destroyed. The patients are distracted, count all events the same, and do not know when they did this or that; and this amnesia may extend to a period of the last ten years. They dream over again the dream of life, and live in a time gone by. Consciousness as to past and present events is also affected, and this shows itself in a habit of wandering, or straying. They will go to strange houses, taking them for their own, and possess themselves of other persons' effects under the same error. Mistrusting everybody and under delusions of persecution, they accuse their servants of dishonesty. Güntz says that they show a predilection for abstracting keys from places where they have no business. Maniacal and melancholy symptoms, partaking in character of the peculiar form of psychic weakness, supervene at times. At the commencement and in the course of the disease, phases of maniacal exaltation consisting of aimless wandering, motiveless business, loquacity, come on; and they get up in the night and forage about the house, the great lesion of consciousness and memory being apparent in their not knowing where

they are, nor where they have put their clothes. Sexual propensities, with inclination to excess in this direction, revive, and they not unfrequently beget children. Very often melancholia shows itself, consisting of sinking feeling at the chest and hypochondriacal sentiments of death, treachery, etc., leading at times to refusal of food and accompanied by delusions of persecution, hallucinations of hearing, etc.; but these latter are fragmentary and disconnected. Under the influence of these hallucinations they get up at night, barricade the doors and windows, call for the police, etc.; and as they alternate between expansive and repressive delirium, they will address the same person at one time as 'my lord,' at another as 'an abominable pest.' These delusions vanish as the intellect becomes weaker, the patient becomes incoherent, unclean, and finally lost to all outward impressions. Motor affections are common, and consist, besides the senile tremor which is not as yet sufficiently well explained, of paralysis of the tongue, hemiplegia, and such like results, due to embolism, congestion of the circulation, hypertrophy of the heart, etc. The course of the disease is chronic, on an average two to five years. Death ensues usually from brain-complication or pneumonia. Remedies are useless, but a nutritious diet, with moderate supply of stimulants, is desirable. Since the conditions depend chiefly on cerebral anæmia, the restless condition at night is explained, and this is best combated by a slight stimulant at night, and a moderate dose of opium. Chloral hydrate is less to be recommended, because of the brittle state of the vessels and the fatty degeneration of the heart.

[The description above given represents faithfully many persons who, on account of the inability of their friends to manage them at home, are sent to asylums. The feebleness of mind being the result of a physiological change, it seems rather hard that they should come under the legal conditions of lunatics. Yet such is the case. Unless great care be taken, the fact of a person suffering from loss of memory and incoherence, due to natural decay of the faculties, may lead to erroneous statistics. For instance, a man at thirty will beget a child, sound in every way; but the father at the age of sixty or sixty-five, owing to atheroma of the vessels, a physiological change of old age, loses his memory and takes to wandering. He is, the friends being unable to keep him, put away in an asylum, and, if the son should afterwards become the subject of disease, the fact of his father having been 'in an asylum' is noted and hereditary taint supposed, where in reality not the slightest ground for it existed. No doubt, persons the subjects of dementia senilis require extraneous aid, which can be properly afforded only by asylums or similar institutions; but the reporter wishes to point out how necessary it is in estimating the question of hereditary taint in insanity, to bear in mind the fact that it by no means follows that because a person is confined in an asylum therefore his family is imbued with hereditary taint. —*Rep.*]

CHRISTIAN ON PACHYMENINGITIS IN THE INSANE.—In a work published in 1864 at Strasbourg, on 'hæmorrhagic pachymeningitis,' Dr. J. Christian gave a complete history of this pathological occurrence. Subsequent observation has confirmed what was there written (*Annales Médico-Psychologiques*). Pachymeningitis is inflammation of the dura mater,

characterised anatomically by production of cellular new membranes, generally vascular, on the internal face of the dura mater.

Observations made in Germany and France have shown the important part this inflammation plays in the production of intra-arachnoid meningeal hæmorrhages; so much so, that the history of the two cannot be separated, depending as they do on one and the same affection of the membranes. But first, as the new membrane can exist and be developed without hæmorrhage, so blood may be effused into the cavity of the arachnoid without new membrane; for, if a vessel of the dura mater, or one of the sinuses be ruptured, hæmorrhage will follow without any inflammation. These solitary hæmorrhages are not rare among the insane. Calmeil has reported several; and Christian gives one occurring in an epileptic, where hæmorrhage came on during a paroxysm, after a series of attacks which had induced intense congestion. The same thing has been seen in those affected with chronic alcoholism, a condition easily explained by the fatty degeneration of the vessels. Hæmorrhage must be viewed as an accident, pachymeningitis as a disease; so in the former one sees the signs of an intense cerebral congestion, followed suddenly by those of cerebral compression, but in the latter the brain-affection is of long date, and is generally insidious and chronic in its course, *e.g.*, the patient may have had transitory congestions, incomplete hemiplegia disappearing and then reappearing; he falls into a state of marasmus, and after death are found new membranes more or less developed. Pachymeningitis is not uncommon in the insane. It is chiefly met with in general paralysis, where Baillarger has noted it once in eight cases, Brunet once in five cases, and Christian once in three. But it may also occur in mania, dementia, etc., and in all the cases where it is met with other lesions are seen, either of the brain or membranes, and especially of the vascular system; to such an extent, indeed, that it would appear that it may supervene as a complication of any chronic malady of the nervous centres. In the insane it comes on in two different ways: 1. Either as an ultimate accident, and here one finds only rudimentary new membranes mixed with recent effusions of blood; or, 2. It occurs during the insane state, following a chronic course and becoming possessed of considerable development. In this form there are some symptoms peculiar to it, influencing to some degree the course of the delirium, at least in certain cases. Then follows the history of three insane persons, who from different causes were in a state of profound cachexia followed by development of false membrane. How does the cachexia act? Is it by a lesion of the vessels, or is it from an alteration of the blood? Does it determine ulceration of the epithelium lining the inner face of the dura mater, which constitutes the so-called parietal layer of the arachnoid? However it may be, there seems to be a direct connection between cachexia and the effusion of false membrane, and this relation is furthermore borne out by the fact that the acute maladies in which pachymeningitis has been seen are precisely those in which rapid deterioration of the blood ensues, such as typhus, variola, scarlatina, etc. These recent cases have given rise to endless discussions as to whether the hæmorrhage precedes the membrane, or whether the latter is first and causes the effusion. The theory that the new membrane is

formed at the expense of the clot is no longer held now, for neither the fibrine nor the other materials of the blood are susceptible of organisation. But how is it to be understood that a fine delicate membrane, hardly organised at all, can give out a considerable quantity of blood? This question, which is not of primary importance, cannot be answered absolutely in one sense or the other. The new membrane is formed on the inner surface of the dura mater, and the vessels which are there developed anastomose with those of the dura mater, rudimentary though the former may be. If then by any chance the dura mater become congested, there is every chance that a rupture will take place in the direction of least resistance, *i.e.* in the walls of the new vessels. Hence the effused blood comes both from the new membrane and from the dura mater. One of two things is sure to happen—either the effused blood will be small in quantity and the new membrane will imprison the clot, or the hæmorrhage may be large, and, breaking down the cellular network, will be poured into the arachnoid cavity, and then the new membrane, drowned as it were in the effusion, may be undetected. Then follows a report of some cases where the pachymeningitis occurred in very feeble and cachectic patients, but where, supervening early, it had plenty of time to develop itself, and, indeed, to influence the course of the symptoms. In one of these there was a double hæmatoma aurium.

It appears to Dr. Christian that the delirium, in cases complicated with this peculiar product, is very wild and diffuse in its nature, and is attended with rapid marasmus, incomplete hemiplegia, and periods of coma, lasting for a time and then disappearing in accordance with the various hæmorrhages as they occur and subside. T. C. SHAW, M.D.

DERMATOLOGY.

AUSPITZ ON THE EFFECT OF VENOUS OBSTRUCTION OF THE SKIN.—Dr. Auspitz has lately brought before the k. k. Gesellschaft der Aerzte in Vienna some observations on the effect of venous obstruction upon the skin, which are reported in the *Allgemeine Wiener Medizin. Zeitung* for November 3.

1. A ligature was tied round the arm of a healthy person, as if for bleeding. First the superficial veins swelled, then a livid colour spread over the arm, beginning on the flexor surface (where the skin is thinnest) and at last affecting all but the volar eminence (the thickest part of the skin). At the same time the temperature sank. The next effect was oedema of the skin, followed in from five to ten minutes by the appearance of numerous patches of red or brownish-red colour, accompanied by minute spots, which were either bright scarlet or purple in tint. On removing the bandage, the cyanosis first disappeared, then the oedematous swelling; next the red patches gave place to a diffused blush of the whole arm; and lastly this disappeared, leaving only the minute red spots, which remained for several hours or even days. Comparing these appearances with those observed by Cohnheim in a rabbit's ear as the result of mechanical venous obstruction, there can be no doubt that the minute red spots above mentioned are extravasations, either of red blood-corpuscles or of their hæmoglobin in solution.

2. Similar experiments were next tried by Dr. Auspitz on the arms of persons suffering from measles, variola, and other cutaneous diseases.

a. In the cases of measles, it was observed that the large red patches above mentioned coincided with those of the eruption; and that, beside the minute ecchymoses, larger spots of cutaneous hæmorrhage sometimes appeared.

b. The effect in cases of urticaria was less marked. The wheals were more prominent, and minute ecchymoses were not more frequent (perhaps less so) than in the normal skin.

c. In ordinary small-pox, there was intense congestion of the bases of the pustules, and the points of cutaneous hæmorrhage were both more numerous and larger than in a normal arm; but there was never any extravasation of blood in the pustules themselves.

d. In cases of hæmorrhagic variola, the whole of the arm below the ligature became rapidly covered by a dark-blue lividity, which concealed all minor shades of colour. This was the case even when there were few or no pustules; and when these were present, they were not themselves the seat of extravasation of blood.

e. The ligature applied to the arm of patients suffering from scarlatina had little or no effect beyond that observed in the control experiments above noted on the normal skin.

f. In 'scorbutic affections—*Erythema nodosum*, *Morbus maculosus Werthoffii*, *Purpura rheumatica* and scurvy proper'—Dr. Auspitz was surprised to find the effect of the ligature trifling. There was no scarlet injection of the skin and no ecchymosis. This seems to confirm the old belief (recently called in question by Cohnheim) that purpura depends on a change in the blood itself, and not on any difference of pressure in the circulation or on anatomical lesions of the blood-vessels.

P. H. PYE-SMITH, M.D.

RECENT PAPERS.

On Lupus. By M. Lailier. (*Mouvement Médical*, November 21.)

On Scurvy. By Dr. Berchon. (*Gazette des Hôpitaux*, November 19.)

Remarks on Alopecia Areata and Tinea Tonsurans. By Robert Liveing, M.D. (*Medical Times and Gazette*, November 28.)

Practical Management of Skin Diseases. By L. Duncan Bulkley, M.D. (*Virginia Medical Monthly*, November, 1874.)

OPHTHALMOLOGY AND OTOTOLOGY.

GIRAUD-TEULON ON THE ATTITUDES ASSUMED BY PATIENTS WITH PARALYSIS OF ONE OR MORE OF THE MUSCLES OF THE EYEBALL.—The paper on this subject (*Annales d'Oculistique*, July and August, 1874), is the thesis which was read by M. Giraud-Teulon before the Académie de Médecine, on the election of its author as a member of that body.

The obscurity which pervaded the writings of the older physicians on the subject of paralysis, or of paresis of the ocular muscles, has been dispelled before the painstaking observation of later inquirers, and has been replaced by a classification as exact as it is simple. The existence of a paralysis, or even of a paresis, may be foretold by the occurrence of diplopia, so that in one sense the two may be said to be convertible terms. It is the object of this paper to draw attention to the attitudes which the sufferer from any of the various forms of paralysis

will assume, for these attitudes will vary with each different form of the affection; but they will follow certain laws which admit of being formulated, and of being definitely stated. By the study of these laws of movement, Giraud-Teulon believes that it is possible to determine the exact seat of the lesion in any given case; and in this study we have, he thinks, a means of diagnosis second only in importance to the analysis of the diplopia, affording, as it does, very valuable indication as to the strength and the kind of prism which will afford relief. It must, however, be admitted that the power to use such knowledge will require an amount of penetrative observation which is not often to be met with.

When there is paralysis of any one of the ocular muscles, every effort in the direction of the action of that muscle must result in diplopia; if then a paralysis fall upon a muscle whose action is to the right, all objects situated to the right will appear double, and *vice versa*; or when the direction of action is upwards or downwards, the same thing will occur. The half of the field of vision on the side opposite to the weakened muscle will, of course, be free from double images, which are so annoying, that the patient is not long in making the discovery, and by a movement of his head he will endeavour to bring objects within this portion of his field of vision wherein diplopia does not exist. Thus, when the head and face are turned to the right, it is because the left half of the field is free from double images, and *vice versa*; and for similar reasons if diplopia existed above or below the horizontal line there would be corresponding and compensating movements of the face, either upwards or downwards. Patients make this discovery, and obviate some of the annoyance of diplopia by a kind of instinct; it is a common observation that any movement of the eyes is intimately associated with corresponding movements of the head and neck, and all that a paralytic does, is to exaggerate these movements; when, for instance, there is a want of power in the left eye to look to the right, the left half of the field is without diplopia, and so the patient, by instinctively turning his face to the right, endeavours to transpose this region of normal vision to the median line. In the case of a failure of one of the recti muscles, the direction of whose action is simply inwards or outwards, the case is easily stated, and the corresponding movements of the head are at once understood; it is not so, however, when the power of looking upwards or downwards, or in any intermediate direction, is lost; for, as this depends upon the action of several muscles, the corrective movements are more complicated and are not so readily unravelled. They do occur all the same, and admit of analysis in a similar way. Thus when the power of upward vision is lost, there will be double images of unequal height vertically, with a lateral separation and with a certain amount of inclination towards each other, and in the patient's attitude we shall see an effort made to annul, as far as possible, these several conditions. The head and face will be elevated, and the eyes will assume a fixed direction laterally; by these means the difference in elevation, and the interval existing between the two images laterally, will be obliterated. There yet remains the third condition, the obliquity or inclination of one of the images to the other to be overcome; and this is brought about by the head being inclined to one side at the same time that it is elevated. By these movements, simple vision with associated images may be re-

stored, but as yet only in one fixed and definite direction; and the patient is now in the position of one who has lost the power of lateral vision, consequently one other movement has yet to be recorded, namely, in the position of the face which is turned to one side, so that the field of single vision is once more brought into the median line, as regards the head and the trunk. In judging of the seat of paralysis by these instinctive movements of the patient's head, it is of the last importance that the date of the affection should be known; because, where the paralysis has existed any length of time, the muscles may have undergone some amount of structural degeneration, or the antagonists of the weakened muscle may have become contracted so that the field of normal vision is permanently transposed to one side or the other, and under such circumstances it would be unsafe to speak too positively of the seat of the original lesion.

BOWATER J. VERNON.

WREDEN ON MYRINGOMYCOSIS ASPERGILLINA.—Dr. Wreden, of St. Petersburg, gives, in the first number of the fourth volume of the *Archives of Ophthalmology and Otology*, the results of his observations on the fungi of the ear. He has had seventy-four cases of myringomycosis, in which he found *Aspergillus nigrificans* forty-nine times, and *Aspergillus flavescens* twenty-four times, the remaining case showing the ascomycete form of the aural aspergillus, hitherto undiscovered in the ear, which, on account of its intensely red colour, he named *Otomyces purpureus*. He considers that the aspergillus, with its different varieties and fructifications, must be designated the specific aural fungus; that the false membrane developed in the affection is usually moulded into a cast of the membrana tympani and the acute angle formed between it and the inferior wall of the auditory meatus, and that the formation of this false membrane is unattended by any otorrhoea of a purulent nature. 'The fungous growth never causes a real purulent otorrhoea.' He has not seen a single case in which, during a profuse purulent discharge, a fungous growth has been developed, though he has seen frequently a slight serous or mucous discharge present in a case of myringomycosis. He likens the external surface of the false membrane to a piece of fat pork, while the inner surface shows bright yellow or black spots, often arranged in circles, the solitary case mentioned above being of a purplish-red colour. In all cases where fungi have been present in the ear for some time, some morbid symptoms, either subjective or objective, are found. Dr. Wreden still holds his formerly expressed opinion, that these fungi are true parasites, and not merely mouldy saprophytes, that is, fungi which inhabit only dead organic matter.

W. LAIDLAW PURVES.

REVIEWS.

Infant Diet. By A. JACOB, M.D. Revised, enlarged, and adapted to popular use by MARY PUTNAM JACOB, M.D. New York. 1874.

Although this little book is expressly said not to be a 'mother's manual,' it yet appears, to judge from the preface, to be written for the special instruction of women. The authors repudiate with disdain the assertion of Fonssagrives that 'physiological theory is of no importance to the mother,' and maintain, on

the contrary, that 'the theory of a fact does concern every person who is interested in its application.' Consequently, they devote the present essay to an exposition of the physiological laws which regulate nutrition in early life, together with the means by which the growth and healthy development of the infant may be most successfully maintained. The authors claim for their essay that it is a 'popular' one, in that they have avoided as much as possible the use of technical language; that they have been careful to explain all things with which an unscientific person is not expected to be familiar; and that they have rigidly excluded all doubtful theories from their pages. To a certain extent this is no doubt the case: some efforts have been made—by replacing technical terms, where possible, by simpler expressions, or by explaining their meaning whenever it could be done briefly—to render their exposition intelligible to the reader: but in a book designed expressly for the use of women, much more might have been done in this! respect, and there is still far too lavish a use of scientific phraseology, and too great a tendency to encumber the explanations by over-elaboration. To give an example:—an account of the process of digestion in the child is embarrassed by a description of the human stomach; and its differences from the same organ in the carnivora and other animals, and in birds, are dilated upon. Again, a description of the digestive process itself is greatly obscured by chemical technicalities, and the use of such words as 'peptone,' 'parapeptone,' and 'metapeptone' must prove rather terrible to the unscientific mind. It is true that 'peptone' is explained to be 'a soluble product of the modified albuminoids,' but this explanation does not perhaps altogether remove the difficulty. Later on, in discussing the effects of heat upon the infant economy, the authors appear to forget completely that their observations are directed to a lay audience; the most technical language is used without stint or any attempt at explanation, and the whole passage reads like an extract from a scientific paper prepared for a medical debating society.

It is for this reason, we think, that the general tone of the essay, admirable as it is, is pitched in too high a scientific key, and that for a popular work it appeals to too narrow a circle of readers. The authors assume a degree of scientific cultivation in the reader which is certainly an exceptional accomplishment even amongst the better educated women—at least in this country, and on this account we fear their labours are not likely to meet with that general appreciation which was no doubt expected and is certainly deserved.

In itself, however, the treatise is a very useful one, and as setting forth in a clear light the laws which regulate the process of digestion in the infant, and the kind of food which best meets the wants of the system, will surely prove a valuable guide to the student and young practitioner, and form a useful preliminary to more strictly professional study of the diseases of early life.

Starting with the assumption that milk is the best food for a young child in all stages of its development, the authors first discuss the conditions regulating its secretion in the human subject. They state its composition; estimate the value of its different components; and give reasons why it is occasionally found to disagree. The anæmia and atrophy sometimes seen in sucking infants brings up the subject of rickets, and it is shown that mother's

milk is no preservative against this disease, which is merely a common expression of malnutrition in the child in whatever way that malnutrition may be induced. Human milk is then compared with cow's milk, and the causes of the frequent indigestibility of the latter fluid are explained. An account of the digestive process then introduces the experiments of Korowin, of St. Petersburg, upon the salivary and pancreatic secretions, and leads to a discussion of the desirability of starch as a food, and an inquiry into the relative value of different farinaceous materials. Digestion in the stomach is described at considerable length, and some of the causes which interfere with that process and lead to vomiting are touched upon. The food is then followed down into the intestines; the changes it there undergoes are described, and the arrangements which may occur, leading to flatulency, colic, and constipation or diarrhoea, are referred to. Finally there is a highly technical explanation of the influence of heat upon the young child, and the essay closes with some plain rules for the nursing and feeding of children, and for their management during the hot season.

It will thus be seen that the authors deal very fully with the subject of which they treat. The little book is carefully written on the whole, but the page is constantly disfigured by the use of the word 'that' for 'which,' an inelegance which sometimes causes a little confusion in the sense. The essay can be strongly recommended to any one who is desirous of mastering the subject of infant feeding, and who has acquired, at any rate, an elementary knowledge of physiology and chemistry. Without this knowledge little advantage could be gained from its perusal.

MISCELLANY.

A WARNING TO DOCTORS.—A warning to doctors is issued by the *San Francisco News Letter*, which announces its intention in future of publishing after each death-notice the name of the attending physician.

PHYSIOLOGY FOR LADIES.—Dr. J. G. McKendrick recently commenced in Edinburgh a series of lectures to ladies on Physiology, at which there is already an attendance of seventy-one.

WEATHER-LORE.—Professor Dove has lately published an article in the magazine of the Berlin Academy on cool Mays after mild Januaries. Herr Dove regards as proved a tendency to low temperatures in spring after warm winters. It appears that a mild January is generally followed in the interior of continents by a mild May, on the north and east coasts by a cool May, on the Atlantic Ocean again by a May milder than usual.

REMARKABLE COINCIDENCES.—One of the most remarkable series of coincidences on record is furnished by the statistics of Iowa and Georgia in the matters of insanity, blindness, etc. The populations are given as follow: Georgia, 1,185,000; Iowa, 1,182,933 (the national census made them 1,191,792 and 1,184,109 respectively), and the following were the showings of the two States as to the unfortunate classes of their population:—

| | Georgia. | Iowa. |
|-------------------------|----------|-------|
| Insane | 1185 | 1183 |
| Idiotic | 790 | 789 |
| Deaf and Dumb | 677 | 676 |
| Blind | 474 | 473 |

AN AWKWARD DRAUGHT.—Dr. G. R. Gilruth reports a case (*Edinburgh Medical Journal*, Nov. 1874), in which a middle-aged, delicate woman, feeling herself becoming

suddenly faint, seized an ordinary quart bottle, thinking it contained porter, and drank the whole of its contents, namely a pint of paraffin oil. Her mistake being at once discovered, an emetic was given, causing copious vomiting. When seen, shortly after, by Dr. Gilruth, she complained of a burning sensation in the region of the throat and stomach; the surface of the body was cold, but the pulse was good, and the fauces, with the exception of being slightly reddened, had a natural appearance. The treatment consisted in giving about three drachms of the bicarbonate of soda dissolved in a small basinful of warm water; ordering a hot poultice to be applied over the abdomen; and, later, two drachms of wine of ipecac, but without causing more vomiting. The natural warmth speedily returned to the body, the unpleasant symptoms disappeared, and in the course of a few days the woman was moving about in her ordinary state of health.

OPIUM SMOKING.—In the new series of consular reports from China, Mr. W. E. King, Vice-Consul at Kewkiang, put in a word in favour of moderate opium-smoking. In a tour on the Upper Yangtze and in Szechuen he observed that the junk sailors and others smoked with impunity. Their constitutions seemed robust, for they had prodigious appetites, and their work was very hard, lasting from 4 A.M. until dark with hardly any intermission, and constantly requiring them to strip and plunge into the stream at all hours and often in the most dangerous parts. The two persons most addicted to smoking were the pilot and the cook. On the incessant watchfulness and steady nerve of the former the safety of the junk and all on board frequently depended, and the second worked hard from 3 A.M. to 10 P.M., and often longer, and seemed independent of rest or sleep. This latter had a conserve of opium and sugar, which he chewed during the day, as he was only able to smoke at night. Consul King declares his opinion as to the mischief of opium-smoking to be much modified; he feels bound to recognise the fact that the habit can and does exist without detriment to health or capability, the opium merely affording a solace and a stimulant.

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